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CONTENTS

PAGE

MILITARY

Preparations Under Way for Defense Technology Association (JPE AVIATION REPORT-WEEKLY, 24 Oct 79)	1
Yen Depreciation Affects Defense Equipment Imports (JPE AVIATION REPORT-WEEKLY, 24 Oct 79)	2
F-4EJ Fighter Modernization Planned by ASDF (JPE AVIATION REPORT-WEEKLY, 24 Oct 79)	3
767 May Be Studied as Possible Candidate for C-X (JPE AVIATION REPORT-WEEKLY, 24 Oct 79)	4
ASDF Requires Heavy-Lift Capability From New Helicopter (JPE AVIATION REPORT-WEEKLY, 24 Oct 79)	5
GSDF Supports ASDF Plan for V/STOL Fighter (JPE AVIATION REPORT-WEEKLY, 24 Oct 79)	6
GSDF AH-1S Test Program Planned (JPE AVIATION REPORT-WEEKLY, 24 Oct 79)	7
MSDF Shipbuilding Plans Due for Reappraisal (JPE AVIATION REPORT-WEEKLY, 24 Oct 79)	8
JDA To Launch New ATM Development in FY '80 (JPE AVIATION REPORT-WEEKLY, 24 Oct 79)	9
TR&DI/GSDF MICV Development Program (JPE AVIATION REPORT-WEEKLY, 24 Oct 79)	10
GSDF Considers Developing Tactical MLS (JPE AVIATION REPORT-WEEKLY, 24 Oct 79)	11

CONTENTS (Continued)

Page

SDF To Promote Extensive Studies on Nike, Hawk Replacements (JPE AVIATION REPORT-WEEKLY, 31 Oct 79)	12
ASDF Fighter Squadron During 1980-1984 (JPE AVIATION REPORT-WEEKLY, 31 Oct 79)	13
GSDF Armor and Artillery Reequipment Prospects (JPE AVIATION REPORT-WEEKLY, 31 Oct 79)	14
GSDF New Tank Program (JPE AVIATION REPORT-WEEKLY, 31 Oct 79)	15
GSDF Reorganization Plan for FY '80 (JPE AVIATION REPORT-WEEKLY, 7 Nov 79)	16
ASDF Plans Extended Use of F-4E (JPE AVIATION REPORT-WEEKLY, 7 Nov 79)	18
GSDF AH-1S Program May Start in FY '81 (JPE AVIATION REPORT-WEEKLY, 7 Nov 79)	19
Communications Equipment R&D Projects for FY 1980 (JPE AVIATION REPORT-WEEKLY, 7 Nov 79)	20
F-15 and P-3C Procurement Programs May Be Readjusted (JPE AVIATION REPORT-WEEKLY, 14 Nov 79)	22
Sparrow AAM Expected for Local Production (JPE AVIATION REPORT-WEEKLY, 14 Nov 79)	23
MSDF Considers Follow-On P-3C Production (JPE AVIATION REPORT-WEEKLY, 14 Nov 79)	24
GSDF To Deploy More SAM Systems (JPE AVIATION REPORT-WEEKLY, 14 Nov 79)	25
GSDF To Adopt M110A2 203MM SPH (JPE AVIATION REPORT-WEEKLY, 14 Nov 79)	26
Status of JDA's R&D Programs (JPE AVIATION REPORT-WEEKLY, 14 Nov 79)	27
GSDF/TR&DI End Tan-SAM Firing Tests (JPE AVIATION REPORT-WEEKLY, 14 Nov 79)	29

CONTENTS (Continued)

Page

JDA Eager To Obtain Funds for Engine Fabrication (JPE AVIATION REPORT-WEEKLY, 14 Nov 79)	30
MSDF Plans HSS-2B Tactical Training Center (JPE AVIATION REPORT-WEEKLY, 21 Nov 79)	31
MSDF Strives To Build Harpoon-Armed Sub (JPE AVIATION REPORT-WEEKLY, 21 Nov 79)	32
GSDF AH-1S Starts Firing Tests (JPE AVIATION REPORT-WEEKLY, 21 Nov 79)	33
GSDF Wants Visual Aiming Simulator (JPE AVIATION REPORT-WEEKLY, 21 Nov 79)	34
TR&DI Plans To Build Cruise Missile (JPE AVIATION REPORT-WEEKLY, 21 Nov 79)	35
Carbon Composite Material Tests Successful (JPE AVIATION REPORT-WEEKLY, 21 Nov 79)	36
Oki Electric Awarded 'TASS' Contract (JPE AVIATION REPORT-WEEKLY, 21 Nov 79)	37
Decision Time for Hawk/Nike Replacement (JPE AVIATION REPORT-WEEKLY, 28 Nov 79)	38
ASDF Plans for F-4EJ Improvement (JPE AVIATION REPORT-WEEKLY, 28 Nov 79)	40
ASDF Plans for New Surveillance Radars (JPE AVIATION REPORT-WEEKLY, 28 Nov 79)	41
High-Speed Target Drone for Tan-SAM (JPE AVIATION REPORT-WEEKLY, 28 Nov 79)	42
New GSDF Command/Communication Vehicle Completed (JPE AVIATION REPORT-WEEKLY, 28 Nov 79)	43
Briefs	
ASDF Promotes Automated RAPCON	44
Modernized 74 MBT	44
New 155MM Howitzers Adopted	44
GRX-2 High-Speed Homing Torpedo	45
Badge System Study	45
FY 1979 Missile Orders	45
SH-60B Eyed for Adoption	45
CLGP, Guided Bombs Plans	46

CONTENTS (Continued)

Page

ECONOMIC

Airbus Industrie Expresses Interest in Y-XX Project (JPE AVIATION REPORT-WEEKLY, 24 Oct 79)	47
Fokker Chairman Revisiting Country for Y-XX Proposal (JPE AVIATION REPORT-WEEKLY, 24 Oct 79)	48
KHI Gains Commitments for 70 BK-117s (JPE AVIATION REPORT-WEEKLY, 24 Oct 79)	49
Fokker Chairman Pushes F29 Project (JPE AVIATION REPORT-WEEKLY, 31 Oct 79)	51
JDA To Order RPV From FHI (JPE AVIATION REPORT-WEEKLY, 31 Oct 79)	52
MITI To Promote Innovative Aircraft Development (JPE AVIATION REPORT-WEEKLY, 7 Nov 79)	53
JDA and Industry Concerned on F100 Engine (JPE AVIATION REPORT-WEEKLY, 7 Nov 79)	54
MITI Contemplates Subsidy to Material Manufacturers (JPE AVIATION REPORT-WEEKLY, 7 Nov 79)	55
New Air Routes Over Kansai Effective From 10 December (JPE AVIATION REPORT-WEEKLY, 14 Nov 79)	56
Three Airlines To Vise Over Expanding Service (JPE AVIATION REPORT-WEEKLY, 14 Nov 79)	58
KHI, MHI To Start Boeing 767 Output in Mid-November (JPE AVIATION REPORT-WEEKLY, 14 Nov 79)	59
Three Aluminum Producers To Develop Super Duralmin (JPE AVIATION REPORT-WEEKLY, 14 Nov 79)	61
MITI Advisory Body To Discuss Plans for FY 1980 (JPE AVIATION REPORT-WEEKLY, 14 Nov 79)	62
Airbus Welcomes Government Participation in New Program (JPE AVIATION REPORT-WEEKLY, 21 Nov 79)	64
Rolls-Royce Executives To Visit for Joint Project Talks (JPE AVIATION REPORT-WEEKLY, 21 Nov 79)	66
Longer Lead Time Required for Processed Material (JPE AVIATION REPORT-WEEKLY, 21 Nov 79)	68

CONTENTS (Continued)

Page

SJAC To Inaugurate Ad-Hoc Committees (JPE AVIATION REPORT-WEEKLY, 21 Nov 79)	70
No Shortage of Fuel Oil Supplies Foreseen for Winter (KYODO, 21 Nov 79)	71
Oil Transforms Gulf Relations With Japan (Saif al-Din al-Wady Romaki; EMIRATE NEWS, 25 Nov 79)	72
Defense Budget May Be Cut Below 0.9 Percent of GNP (KYODO, 30 Nov 79)	75
News Agency Predicts 1980 Growth Rate of 4.5-5 Percent (KYODO, 2 Dec 79)	76
Study Group Issues Economic Proposals (KYODO, 3 Dec 79)	79
Reportage on Economic Predictions for 1980 (KYODO, 5, 6 Dec 79)	80
Bank Calls for Export Restraint Export-Import Growth Forecast	
Briefs	
Loan to Burma	82
Aid to Thailand	82
Iraq Machinery Contract	82
Aid to Egypt	82
Science, Technology Exhibition	83
Loan to Mauritania	83
Steel Agreement	83
Aid to Kenya	83
Aid to Nepal	84
Aid to Ghana	84
Wage Restraint	84
No Defense Buildup	85
Chinese Space Facilities Inspected	85
Nike Replacement Research	85
Y-X Contracts Awarded	85

SCIENCE AND TECHNOLOGY

New Battery Grid Manufacturing Process Developed (CHIKUDENCHI, 1 Oct 79)	86
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CONTENTS (Continued)

Page

Orders Planned for Experimental Portable SAM (JPE AVIATION REPORT-WEEKLY, 31 Oct 79)	89
Decision on MT-X Expected in Spring (JPE AVIATION REPORT-WEEKLY, 31 Oct 79)	90
GSDF/TR&DI To Begin Antimortar Radar Development in FY '80 (JPE AVIATION REPORT-WEEKLY, 31 Oct 79)	91
Extensive Research Into Satellite Data Begun (JPE AVIATION REPORT-WEEKLY, 7 Nov 79)	92
MELCO Completes Plant for Space Equipment Materials (JPE AVIATION REPORT-WEEKLY, 7 Nov 79)	93
TR&DI Requests Precision Guidance Simulator (JPE AVIATION REPORT-WEEKLY, 28 Nov 79)	94
GSDF Plans To Develop Antitank Recoilless Gun (JPE AVIATION REPORT-WEEKLY, 28 Nov 79)	95
R&D Programs for Maritime Equipment (JPE AVIATION REPORT-WEEKLY, 31 Nov 79)	96
Briefs	
New ECM Development	98
MT-X Project for FY 1981	98
Maneuverable Target Drone	98
New Sonar Development	99
Artificial Blood Development	99

MILITARY

PREPARATIONS UNDER WAY FOR DEFENSE TECHNOLOGY ASSOCIATION

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Oct 79 p 4

[Text]

The Japanese Defense Agency (JDA) may apply to the Prime Minister's Office, possibly early in November, for authorization of a "Defense Technology Association" as a non-profit corporation according to informed sources.

It has been studying characteristics, business plans, management, financial scale and other aspects of the new organization, which is planned to be established after approval.

Main promoters of the association are the Federation of Economic Organizations (Keidanren), the Society of Japanese Aerospace Companies, the Japan Shipbuilders Association and the Japan Ordnance Association.

The new association is aimed at promoting research and development of defense technology to contribute to strengthening the foundation for Japan's defense buildup. Its plans include overall research into defense techniques, promotion of technical exchange between public and private sectors, and assistance to research and development of defense technology.

The rapid advancement of science and technology has forced JDA to develop high-level defense technology. Its TR&DI, which had originally had very little knowledge on missiles, has now completed development of the Ju-MAT antitank missile, air-to-ship missiles, and plans to proceed with research into a control configured vehicle (CCV) for aircraft, electronics weapons, sophisticated firearms and warships.

Under the circumstances, a body to help support researchers has become necessary along with an increase in funds for research and development of new defense technologies. This has prompted defense-related industries to consider establishment of the association.

CSO: 4120

MILITARY

YEN DEPRECIATION AFFECTS DEFENSE EQUIPMENT IMPORTS

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Oct 79 pp 3-4

[Text]

The Japanese Defense Agency (JDA) and defense-related industries have been looking for measures to cope with the depreciation of the yen against the U.S. dollar, which has resulted in exchange losses for Japanese makers and trading houses in import of defense equipment.

Under current long-term contract with JDA for importing defense equipment, makers and trading houses must return exchange profits to the government but absorb exchange losses on their own.

The disbursing official exchange rate, available for such contracts, is fixed at ¥206 per dollar for July-September this year. However, the yen's value against the dollar remains over the ¥220 level.

Under the current system, the less domestic products are supplied to JDA, the more exchange losses traders and makers must bear. This may lead them to urge the necessity of promoting independent research and development of defense equipment.

JDA has so far held several meetings to study measures for solving the exchange loss problem. However, there are no easy solutions to the problem as far as the accounting law now exists to regulate defense equipment contracts.

The disbursing official rate, introduced at the end of 1977, stood at ¥262 per dollar in January-June 1978, at ¥234 per dollar in July-December 1978 and ¥195 per dollar in January-June 1979, keeping pace with the yen's appreciation.

The rate of ¥206 per dollar for the second half of this year is far less than the actual exchange rate of more than ¥220 per dollar. This wide difference is expected to remain for the immediate future.

CSO: 4120

MILITARY

F-4EJ FIGHTER MODERNIZATION PLANNED BY ASDF

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Oct 79 pp 4-5

[Text]

In relation to the F-X program following the F-15 program, the ASDF has a plan in the FY '78 MTDP to modernize the F-4EJ fighters currently in service. It is basically intended to provide maintenance of 10 interceptor squadrons economically with up-to-date equipment for a long time if procurement of the F-15 is not authorized beyond 100 aircraft or additional procurement of 23 aircraft is approved to replace one Phantom squadron.

The ASDF main fighter has been replaced in a 10-year cycle from the North American F-86F through the Lockheed F-104J and the McDonnell Douglas F-4EJ to the F-15J. The ASDF, however, has no guidelines at the moment for selection of a successor to the F-15 in absence of the USAF projects for a F-15 replacement. Indications are that the F-15 or its versions will remain in frontline service for a long time in the USAF and the ASDF. Because of high costs, however, the ASDF foresees difficulties in procuring enough F-15s to equip all 10 interceptor squadrons. Modernization of the F-4EJ is planned as a measure to cope with this situation.

The ASDF believes that the F-4EJ can remain as a frontline fighter if modernized through addition of advanced electronic and weapons systems, although its performance may be inferior to the F-15. One advantage of the F-4EJ is that it can be modified to carry missiles in common with the F-15.

CSO: 4120

MILITARY

767 MAY BE STUDIED AS POSSIBLE CANDIDATE FOR C-X

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Oct 79 p 5

[Text]

The Boeing 767, developed by Boeing Co. of the United States jointly with Japan and Italy, has been cited as a possible candidate for the C-X, a new transport of the Air Self-Defense Force (ASDF).

The ASDF plans to establish a 36-transport setup by utilizing the existing transport fleet of 24 C-1s and C-X new aircraft to build up its air transport capacity based on the outline of Japan's basic defense policy. To prepare for this, it will study possible candidates for the C-X and review the operational setup of the ASDF air transport force.

Other possible candidates for the C-X include the C-141, C-130, YC-14 and the YC-15 of the U.S. and remodeled types of the C-1.

If American aircraft are adopted, the ASDF would have to import complete aircraft. This is because the number of new transports which will be required by the ASDF is so limited that domestic production under license cannot be realized. In this respect, the 767 is seen as more favorable than the other American candidates as the Japanese government and private firms are taking part in development and production program.

As for the YC-14 and YC-15 and the modified C-130, the ASDF cannot make an independent decision on whether to adopt them, as they are involved in the U.S. Air Force's AMST project.

The promising 767 will, however, present some problems. The price of the aircraft will be reduced due to quantity production for a number of airlines including All Nippon Airways. But, it will still probably be more than ¥80,000 million per aircraft. Even if costs for interior furnishings are cut by remodeling the 767 into a cargo transport type, its price will still present problems. Therefore, whether to select the 767 will depend greatly on the ASDF's evaluation of its performance against price.

Other matters, to be studied regarding the 767 include problems in remodeling, time required for delivery and special ground support equipment.

The 767 is also believed likely to be studied by the ASDF as a VIP and other personnel transport.

MILITARY

ASDF REQUIRES HEAVY-LIFT CAPABILITY FROM NEW HELICOPTER

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Oct 79 p 6

[Text]

As a part of its reequipment programs for transport units authorized in the FY '78 Medium-Term Defense Program (MTDP), FYs 1980-84, the ASDF intends to select a new transport helicopter by July 1980 for procurement under the FY '81 budget.

The ASDF has been operating the V-107 long-range rescue helicopter in terminal transport duties such as ferrying supplies to radar sites where no runways are available. In selecting a new transport helicopter, the ASDF will require it be able to lift cargoes of over five tons, for example, three-dimensional mobile anti-air radar system, to form an integral part of a new transport system presently under study. A modified version of the V-107 or a larger helicopter of the CH-47 Chinook class are among the candidates being studied. Requirements will be up to seven aircraft.

CSO: 4120

MILITARY

GSDF SUPPORTS ASDF PLAN FOR V/STOL FIGHTER

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Oct 79 p 6

[Text]

As future equipment, both the MSDF and the ASDF are promoting studies on deployment of V/STOL strike fighters such as the British Aerospace Super Harrier, and senior GSDF officials are expressing support of the ASDF plan. The GSDF is promoting a plan for activation of an AH-1S antitank helicopter force but the service keenly feels the need of fixed-wing high performance strike aircraft that can provide close air support to GSDF ground units. The GSDF once tried to procure V/STOL strike aircraft in the form of the OV-10A Broncho or the Harrier but they were not authorized due to the distribution of aerial missions among the Self-Defense Forces.

The latest on the USSR's frontline combat aircraft, however, indicates that the GSDF will require increased air support and it is because of this reasoning that the GSDF supports the ASDF plans for V/STOL strike fighters.

It should be pointed out, however, that the prime role of a V/STOL strike fighter envisaged by the ASDF is air defense operations under a national emergency when operations of main interceptors may be curtailed by attacks on fixed airbases.

The MSDF, on the other hand, wants to use V/STOL aircraft for shipboard operations beyond the air cover of the ASDF, for direct escort of the fleet as well as overwater operations to intercept hostile ships, aircraft, and missiles.

CSO: 4120

MILITARY

GSDF AH-1S TEST PROGRAM PLANNED

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Oct 79 p 7

[Text]

To start quantity procurement planned for FY '81 or FY '82, the GSDF is currently promoting operational tests of a Bell AH-1S antitank helicopter. In April, 1980, a second Huey Cobra will enter the test program to develop combat tactics. A report will be completed by July 1980, up on which a full-scale plan for activation of antitank helicopter units in the GSDF will be drafted.

The first AH-1S was delivered to the GSDF on June 7. It was transferred to the GSDF Flight Training Support Unit at Akeno June 13. Operational tests began the following day by the first GSDF antitank helicopter. During July and August it was tested to confirm basic flight characteristics. Combat performance tests were conducted in September, followed by flights for development of combat tactics in October. Further test programs include firing tests in November, combat-simulated flights in December, cold-weather tests in February, and firing tests using live ammunition in March 1980.

The second AH-1S will join the program in April and the two Huey Cobras will be tested as a team. These helicopters will complete tests in June, providing basic data for compilation of the GSDF plan to establish its first antitank helicopter unit.

The first AH-1S has undergone about 200 test flight hours as of mid-October, without any trouble.

CSO: 4120

MILITARY

MSDF SHIPBUILDING PLANS DUE FOR REAPPRAISAL

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Oct 79 p 7

[Text]

The MSDF during the FY '78 MTDP, FYs 1980-84, intends to build thirty-nine ships including 16 destroyers and to modernize six destroyers at a total cost of ¥850,000 million. The plans, however, are due for reappraisal under the FY '81 MTDP which overlaps the FY '78 MTDP, leaving room for a showdown in construction programs or a cut in the number of ships. The MSDF is requesting ¥180,000 million in the FY '80 draft budget compared to ¥150,000 million authorized for FY '79. The extent of changes in the requested funds when approved will immediately affect the MSDF plans for the FY '81 MTDP.

Basic policy of the MSDF for its shipbuilding programs is to achieve an authorized strength of 60 destroyers and 16 submarines deployed in four destroyer groups, 10 coastal flotillas, six submarine units, and two mine-sweeper units. Even if the present plan for thirty-nine new ships and modernization of six destroyers is approved without modification, MSDF strength in the spring of 1985 (end of FY '84) will be less than authorized due to decommissioning of aged ships.

CSO: 4120

MILITARY

JDA TO LAUNCH NEW ATM DEVELOPMENT IN FY '80

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Oct 79 pp 7-8

[Text]

The Japanese Defense Agency (JDA) plans to start full-scale development of a new medium-range antitank missile (ATM) to replace the existing first generation Model 64 ATM in FY 1980. This is one of new missiles under consideration at JDA, which sees the 1980s as an era of precision guided missiles (PGM).

It is now evaluating homing heads and designators developed for the new ATM by Kawasaki Heavy Industries, Mitsubishi Electric Corp. and Toshiba Corp. After evaluation, JDA will conclude a contract on research and fabrication of the new ATM with a prime contractor to be selected from the three firms.

At present, the JDA has two types of ATM--the Model 64 ATM and the Ju MAT antitank/antiship missile. The former has been produced since FY 1962 and the latter since the start of FY 1979.

Deployment of the Model 64 is under way. It is said to be superior to the first-generation ATMs of foreign designs.

When the Model 64 is used, however, troops are exposed to an enemy tank until the missile reaches the target. This is because it is designed to be guided by wire.

Foreign countries are said to be developing third-generation ATMs which fly at a higher speed without wires. Therefore, the JDA intends to develop a standoff ATM-launching system in which the firer is separated from the launching device. The planned ATM will adopt a laser semi-active formula, under which an ATM homes on a returning laser beam bounced off an enemy tank.

The new missile would prevent enemy tanks from discovering the firing team. It would also be included in the category of the PGM. The homing head and designator are seen as key points in development of the new ATM.

MILITARY

TR&DI/GSDF MICV DEVELOPMENT PROGRAM

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Oct 79 pp 8-9

[Text]

The TR&DI plans to fabricate and purchase a turret for new mechanized infantry combat vehicle (MICV) in FY 1980 with ¥580 million requested for the MICV development program as part of its next fiscal year's budget draft.

Under the program it will fabricate a complete vehicle in FY 1981. At this stage, a turret and gun mounted type will be considered.

Although the gun mounted type is viewed as most favorable due to its firing angle, selection remains uncertain because of other factors. In FY 1980, the TR&DI will only study the turret type as the next fiscal year's funds for the program have tentatively been fixed at less than expected.

A possible gun for the turret type MICV is the Oerlikon 35mm KDE. A fire control system (FCS) for the gun will be domestically developed.

The new MICV will weigh 25 tons and be equipped with a 900-horsepower, six-cylinder diesel engine and a 35mm machine gun. This may be changed depending on future operation schemes.

The antitank and anti-helicopter vehicle is designed to perform reconnaissance, armed transportation and attacks on ground weapons.

CSO: 4120

MILITARY

GSDF CONSIDERS DEVELOPING TACTICAL MLS

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Oct 79 p 9

[Text]

The Ground Self-Defense Force (GSDF) is considering development of a microwave landing system (MLS) as a tactical landing system to promote air traffic safety and tactical efficiency of aircraft, especially helicopters.

At present, airports under control of the Ministry of Transport (MOT) are equipped with instrument landing systems (ILS) for air traffic safety. The system is also used by some military aircraft and air bases. However, the International Civil Aviation Organization (ICAO) has recommended adoption of the MLS to increase accuracy and safety. MOT has started studies of the MLS as standard equipment for a new Kansai International Airport.

The GSDF has chosen the MLS as a landing aid for the future in view of the worldwide trend toward the system. It is expected to decide the time to begin development after watching MOT's MLS project. The military-purpose MLS is said to be still in the research and development stage in foreign countries.

The GSDF is studying the tactical landing aid development program based on some new ideas as well as a plan to renew the J/MPN-N1, a small ground controlled approach (GCA) system operated by regional weather and air traffic control units.

There are two types of the MLS--the Doppler type and the time reference scanning beam (TRSB) type. The latter has already been adapted to enable selection of the suitable approach course and treatment of simultaneously-landing planes. The MLS, though having no distance measuring capability of its own, can be linked to distance measuring equipment (DME).

CSO: 4120

MILITARY

SDF TO PROMOTE EXTENSIVE STUDIES ON NIKE, HAWK REPLACEMENTS

Tokyo JPE AVIATION REPORT-WEEKLY in English 31 Oct 79 pp 4-5

[Text]

The GSDF and the ASDF are expected to promote extensive studies on new air defense missile systems to replace existing Nike and Hawk missiles as their survey teams have completed tours of western Europe and the United States.

The teams, consisting mainly of defense service officers, surveyed missile systems for the purpose of collecting information on future air defense systems.

The 2-man GSDF team toured both areas from Sept. 15 to Oct. 8, while two ASDF teams--one for the successor to the Nike-J and the other for airbase defense systems--made overseas tours from Sept. 1 to Oct. 14.

The GSDF and ASDF survey teams are said to have carried out joint study on the Raytheon SAM-D Patriot missile, which is considered the likeliest successor to the Nike and Hawk missiles.

At present, the GSDF has 8.5 Hawk units, of which 4.5 units are planned to be equipped with improved Hawks by FY 1980. As for the four remaining Hawk units, deployment of new missiles has become urgent as the FY 1978 Medium-Term Defense Plan outlined procurement policy regarding replacements.

Although another ASDF Nike-J unit is still being planned, the Nike-J itself is no longer a modern weapons system. In this respect, the defense plan said policy for replacement of the Nike-J would be decided, adding sufficient Tan-SAM and anti-air machine guns would be deployed for defense of airbases and other facilities. This prompted the ASDF to facilitate studies on a successor to the Nike-J and new airbase defense systems.

CSO: 4120

MILITARY

ASDF FIGHTER SQUADRONS DURING 1980-1984

Tokyo JPE AVIATION REPORT-WEEKLY in English 31 Oct 79 p 5

[Text]

The ASDF is authorized to maintain a front-line strength of ten interceptor fighter squadrons and three support fighter squadrons. During the FY '78 MTDP (FYs 1980-84) procurement of seventy-seven McDonnell Douglas F-15 fighters and fighter trainers is scheduled, in addition to the 23 aircraft ordered in FY '78. These will form four squadrons in the ten interceptor fighter squadron structure, together with six squadrons of the McDonnell Douglas F-4EJ fighter.

Procurement of further F-15s, however, is necessary to cope with withdrawal of Phantoms from service. For the moment, procurement of an additional twenty-three is planned for FYs 1982-84 to form a fifth F-15 squadron to cover retirement of a Phantom unit scheduled for FYs 1986-88.

Deployment of three support fighter squadrons of the F-1 will be completed with procurement of 13 aircraft during FYs 1980-81. Qualitative strength of support fighter squadrons, however, is regarded insufficient by the ASDF, as an F-1 squadron comprises only eighteen aircraft.

Major plans of the ASDF for inclusion in the FY '81 MTDP. (FYs 1983-87) may involve the F-X to replace Phantoms and the FS-X to replace F-1s. Since there is no USAF plan for a successor to the F-15 in the near future, the ASDF at the moment appears to have no specific type in mind for the F-X. Some quarters advocate improvement of the F-4EJ to the F-15 standards in combat performance to achieve extended service life. This, however, will immediately affect a plan to increase squadron strength of support fighters from 18 to 25 aircraft by utilizing Phantoms phased out from the interceptor role.

CS0: 4120

MILITARY

GSDF ARMOR AND ARTILLERY REEQUIPMENT PROSPECTS

Tokyo JPE AVIATION REPORT-WEEKLY in English 31 Oct 79 pp 5-6

[Text]

The GSDF is promoting plans to reequip armored vehicles and artillery under the FY '78 MTD, for which ¥40,000 million on the average is estimate to be needed annually.

In FY '81, 203mm self-propelled howitzers will be ordered with 66mm grenade-rifles. The first order for wheeled armored vehicles (command/communication vehicle) will be issued in FY '82. New 155mm howitzers are scheduled to be procured in FY '84. Procurement of the AW-X self-propelled or tracked anti-aircraft gun system will begin in FY '86. The new main battle tank currently under development will be adopted as the Model 88 MBT and procurement will begin in FY '88. The MICV (mechanized infantry combat vehicle) is scheduled to reach service status with the first order also expected to be placed in 1988.

But, procurement plans, especially for FY '85 and beyond, may be curtailed in the light of increased costs of these advanced weapons systems, notably the Model 88 MBT, unless larger amounts are authorized.

CSO: 4120

MILITARY

GSDF NEW TANK PROGRAM

Tokyo JPE AVIATION REPORT-WEEKLY in English 31 Oct 79 p 6

[Text]

The Japanese Defense Agency has concluded a contract with Mitsubishi Heavy Industries (MHI) for research and fabrication of the armor structure and engine of a new battle tank in FY 1979.

This is part of the JDA's ¥14,500 million project for developing a new main battle tank to replace the existing Model 74 MBT.

Research and development of the armor, engine and turret system are planned for the current fiscal year. A contract for the turret system is expected to be awarded to Japan Steel Works by the end of October.

Under the program that started in FY 1977, the TR&DI has already carried out partial tests of engines and weapons. It will end research and development by integrating the body, turret system and the engine in FY 1981. Fabrication of the body-linking system, ammunition and the armor structure is planned for FY 1980.

The new tank is planned to have a 120mm smooth-bore gun as its main armament, although the Model 74 MBT is equipped with a 105mm gun. As Rheinmetall GmbH has asked JDA to adopt its 120mm gun as the main weapon of the new tank, a gun to be developed by Japan Steel Works will have to compete with the German product.

As for the armor structure, ceramics will be put on sheet steel. JDA is also considering introduction of a new armor developed by Britain, and MHI's armor structure will also have to compete with the British type.

The engine capacity of the new tank is planned to be 1,000 to 1,500 hp. compared to 750 hp. of the Model 74 MBT.

CSO: 4120

MILITARY

GSDF REORGANIZATION PLAN FOR FY '80

Tokyo JPE AVIATION REPORT-WEEKLY in English 7 Nov 79 pp 5-7

[Text]

The Ground Self-Defense Force (GSDF) intends to upgrade the 7th Division, a mechanized unit in Hokkaido, into a completely self-propelled armored division by incorporating a major part of the 1st Tank Group under the FY 1980 operations plan.

The new armored division will have three times as many tanks, firepower will be doubled and armored vehicles will be twice that of the current mechanized division so that its mobility and attacking capability can be stepped up.

The plan also provides for the establishment of the 2nd Mixed Brigade in Shikoku, and expansion of the 8th Division in southern Kyushu.

The new armored division and mixed brigade, authorized in the outline of basic defense policy approved by the Government in Oct. 1976, are also major pillars of the FY 1978 Medium-Term Defense Plan worked out last spring.

The reorganization plan for FY 1980 calls for no substantial changes in personnel and equipment and therefore, requires a small budget. Only 10 tanks and 30 armored vehicles will be added to the Northern Army.

The organization and operation scheme for the new armored division has been drafted as a result of studies, training and operation research since about Government approval of the basic defense policy outline.

Consisting of about 6,450 troops, the armored division will have about 230 tanks, about 340 armored vehicles and increased artillery.

It will comprise a divisional headquarters, headquarters company, infantry regiment, three tank regiments, artillery regiment, anti-air artillery (AAA) regiment, a reconnaissance unit, a construction battalion, a signal battalion and a logistic support regiment.

The existing 7th Tank Battalion and the 1st Tank Battalion be regrouped into the three tank regiments, each of which will have 74 tanks in four companies.

Six companies will form the completely mechanized infantry regiment. Each company will be able to be added to a tank regiment to organize a mixed group.

The artillery regiment will be armed with 155mm self-propelled howitzers replacing the current 105mm howitzers. The new howitzer has longer range and higher destruction power.

The AAA battalion of the existing artillery regiment will become the AAA regiment to increase air defense capability of the new division. As the armored division's equipment will center on tanks, protection from airborne attacks will become more important. The new AAA regiment will be equipped with self-propelled AW antiaircraft and L-90 machine guns. As a result, its antiaircraft capability will be twice that of the current AAA battalion. The regiment will also be armed with the Tan SAM surface-to-air missile now under development.

The reconnaissance unit will be equipped with 10 tanks for covering capacity and the construction battalion will have theater mobility. The logistic support regiment will unify the existing ordnance, supply, transport and medical units.

In the reorganization, one of the three existing infantry regiments will be broken up to form the new tank regiments. Of the two remaining infantry regiments, one will go into the armored division and the other will be transferred to the 8th division.

Although most tank groups under the command of the Northern Army will be incorporated into the armored division, a tank group consisting of 530 troops, 74 tanks and 10 armored vehicles will not.

The new 2nd mixed brigade in Shikoku will be similar to a general division to cope with various situations independently.

The 2,090-man brigade's headquarters, headquarters company including communications, reconnaissance and antitank units, and an infantry regiment will be stationed in Zentsuji. Its artillery battalion armed with 105mm and 155mm howitzers and L-90 machine guns, and a 14-tank group will be stationed in Nihonbara and use existing facilities there. A regional construction unit in Kochi will be incorporated into the brigade. A support company will also be formed by unifying logistic units.

In organizing the mixed brigade, the strength of the 13th Division will be cut to 7,000 to cover only the Chugoku district. The 2nd Training Group in Zentsuji will move to Otsu, Shiga prefecture.

As for the 8th Division in southern Kyushu, a regimental combat team will be added to it to increase its force by about 2,000 to 9,000. The infantry regiment coming from the 7th Division will be stationed in Ebino. The 8th Division's construction battalion will move to Kawauchi, Kagoshima Prefecture. Other forces assigned to it will also be strengthened.

MILITARY

ASDF PLANS EXTENDED USE OF F-4E

Tokyo JPE AVIATION REPORT-WEEKLY in English 7 Nov 79 p 7

[Text]

The ASDF plans to introduce in FY '80 the ASIP (aircraft structural integrity program) of the USAF in order to determine structural fatigue levels of the F-4EJ interceptor fighter, six squadrons of which are in operation at present. Through the ASIP, the ASDF will obtain data for extended service use of the Phantom in front-line squadrons along with the F-15 Eagle. The ASIP will be also applied to the F-15 from the production stage.

Extended use of the F-4EJ is being studied to maintain the interceptor fighter strength of the ASDF at 10 squadrons including four F-15 units of 100 aircraft. For this purpose, modification on the F-4E including up-rated fire control systems with look-down capability for firing both AIM-7F and AIM-9L air-to-air missiles is being studied.

It is expected that the ASDF will be able to finalize plans for extended use of the F-4E in time for inclusion in the FY '81 Medium-Term Defense Plan.

CS0: 4120

MILITARY

GSDf AH-1S PROGRAM MAY START IN FY '81

Tokyo JPE AVIATION REPORT-WEEKLY in English 7 Nov 79 p 8

[Text]

The GSDF has been conducting test and evaluation programs for the Bell AH-1S antitank helicopter with one aircraft since June this year. Before delivery of a second Huey Cobra scheduled for April 1980, all test programs will be completed using the first AH-1S. Under the current schedule, therefore, the GSDF intends to include a full-scale AH-1S procurement program in the FY 1981 defense budget so that activation of the first GSDF antitank helicopter squadrons can be realized without delay. The GSDF appears confident that the evaluation report will provide sufficient data for finalizing procurement programs. The second AH-1S helicopter will be used with the first aircraft for formation flights from April through June 1980.

The GSDF program for the AH-1S calls for local production and the quantity expected to be authorized for the FY '78 MTDP (FYs 1980-84) will total about thirty.

CSO: 4120

MILITARY

COMMUNICATIONS EQUIPMENT R&D PROJECTS FOR FY 1980

Tokyo JPE AVIATION REPORT-WEEKLY in English 7 Nov 79 pp 8-9

[Text]

Communications equipment development projects for FY '80 call for total funds of ¥9,917 million.

For development of an electronic automatic information exchange system for the GSDF, ¥1,317 million is on request. Expected to be completed in FY '82, the system will be widely deployed with GSDF communications units for an integrated communications network.

The No. 3 communications relay system will be developed with ¥514 million in FY '80. The No. 1 system is for use with the GSDF regional commands and No. 2 for divisional level of communication. The No. 3 system is intended for regiments.

A new mortar-locating radar system prototype will be fabricated during FYs '80-81 and ¥560 million is on request for FY '80. It will be a compact and probably self-propelled radar intended as a replacement for the MPQ-N1 system presently in service. The GSDF plans to adopt this system as standard equipment in FY '84.

Development of an ECM (electronic counter measure) system for use by surface vessels, mainly destroyers, of the MSDF will continue in FY '80 with ¥1,310 million. Development of the ECM system began in FY '79 with initial funds of ¥979 million. Study on the system began in FY '75 and development costs up to FY '82 will total ¥2,900 million.

Completion of the prototype of the ALQ-5 ECM system is scheduled for FY '80 with ¥1,603 million, following component development in FY '79 for which ¥945 million was authorized. The ALQ-5 is for installation on C-1 twinjet tactical transport aircraft for training in jamming ground radar.

Separate funds amounting to ¥210 million are also on request for FY '80 for conversion of a C-1 aircraft to the ECM trainer. The system will complete test programs in FY '84 and related development costs from FY '79 up to FY '84 will total ¥3,700 million. The ASDF presently operates C-46 and YS-11 ECM trainers equipped with ALQ-1 and ALQ-3 systems.

Development of the ALQ-8 ECM system for use with the ASDF F-15 fighter will continue in FY '80 with ¥1,294 million. Design started in FY '79 for ¥50 million.

Scheduled for completion in FY '82, the program calls for an ECM system aboard the F-15 fighter to counter fire control system radars of hostile aircraft and also radars at SAM sites. Development costs for the ALQ-8 will total ¥1,300 to 1,400 million.

The ASDF is procuring several sets of the Westinghouse ALQ-119 ECM system used by the USAF F-4 and F-15 fighters for reference.

Basic study on a laser-gyro platform will start in FY '80 with ¥112 million. Fabrication of an experimental laser radar system enters the second year in FY '80 for which ¥339 million is on request. The program is a feasibility study on future radar systems using lasers, and the experimental system will be mainly used for study on laser propagation characteristics. Basic research on laser radar started in FY '77 and the cost up to FY '82 will total ¥1,600 million.

System integration will be promoted in FY '80 for a new inertial navigation system for submarines for ¥1,410 million. MSDF submarines presently use the dead reckoning system. The new INS will enable MSDF submarines to establish their exact positions while submerged. The project started in FY '75 and the cost up to FY '82 will total ¥3,000 million.

Development of the TASS (towed array sonar system) for the MSDF in FY '80 will cover fabrication of the signal processing unit with ¥200 million, following fabrication of a recovery system in FY '79 for ¥263 million.

Other programs include fabrication of a new night-vision device for use with the new main battle tank coded Model 88, a long-range radar utilizing ionosphere propagation of radio beams, a laser aircraft landing system, a compact solid-fuel cell and a communications monitoring and jamming system.

CSO: 4120

MILITARY

F-15 AND P-3C PROCUREMENT PROGRAMS MAY BE READJUSTED

Tokyo JPE AVIATION REPORT-WEEKLY in English 14 Nov 79 pp 4-5

[Text]

The Self-Defense Forces plan to procure 392 aircraft during the FY '78 MDP (FYs 1980-84) with requested funds totaling ¥1,400,000 million. For FY '80, total ¥480,000 million funds are on request for aircraft purchase out of the authorized defense outlay framework of ¥2,296,000 million, a 9.6 percent increase from FY '79.

Funds for procurement of thirty-four ASDF F-15 fighters total ¥292,900 million and those for ten MSDF P-3C anti-submarine aircraft ¥97,800 million, this amounts to over 80 percent of the entire funds on request for aircraft procurement in FY '80.

The Ministry of Finance, on the other hand, is becoming more strict in examining national budget drafts, especially defense expenditures. It is feared by the JDA that the ¥480,000 million aircraft procurement funds for FY '80 may be cut to ¥400,000 million, denying follow-on disbursements of ¥80,000 million after FY '80. This would immediately affect present plans for the F-15 and the P-3C aircraft according to JDA.

It is expected that readjustment of F-15 and P-3C programs may be required unless an administrative compromise is reached.

CSO: 4120

MILITARY

SPARROW AAM EXPECTED FOR LOCAL PRODUCTION

Tokyo JPE AVIATION REPORT-WEEKLY in English 14 Nov 79 p 5

[Text]

For use with its McDonnell Douglas F-15 fighters, the ASDF plans to procure the Raytheon/GD-Pomona AIM-7F Sparrow air-to-air missile through local production. It plans to establish local production arrangements shortly so that the first contract for 130 AIM-7F missiles will be concluded with a Japanese manufacturer in FY 1980. Between 1,200 and 1,600 units of the Sparrow AAM will be required for 100 F-15J and F-15DJ fighters and trainers which will make up four of the ten ASDF interceptor fighter squadrons. Funds of ¥5,700 million are on request for FY 1980 for 130 Sparrows.

MELCO has been producing the AIM-7E AAM for the ASDF F-4EJ fighters and it is expected that the same company will be designated by JDA as the prime contractor for the AIM-7F. Local production of the AIM-7E is scheduled for completion during FY 1980.

CSO: 4120

MILITARY

MSDF CONSIDER/ FOLLOW-ON P-3C PRODUCTION

Tokyo JPE AVIATION REPORT-WEEKLY in English 14 Nov 79 p 6

[Text]

The MSDF is promoting plans for procurement of forty-five Lockheed P-3C antisubmarine patrol aircraft beginning in FY 1978. The first eight aircraft ordered in FY 1978 will be delivered during FYs 1981-82. The second order for 10 aircraft will be issued in FY 1980 followed by orders for the remaining twenty-seven aircraft by FY 1984.

The MSDF, however, foresees a need to replace obsolete types such as the P2V-7 and the S2F-1 to maintain quantitative, if not qualitative, strength of its ten fixed-wing land-based anti-submarine aircraft squadrons.

The MSDF, therefore, plans to procure another P-3C series of aircraft through local production so that all ten squadrons will be equipped with 90 to 100 modern aircraft. Other flight units of the MSDF are to be modernized or reequipped. A program to improve performance of the PS-1 flyingboat is under way for one squadron while five land-based ASW helicopter squadrons are to receive replacements for HSS-2s.

The aircraft to succeed the P-3C Orion will be either the Update III of the US Navy or its variant incorporating requirements of the MSDF. Follow-on P-3C production plans will be finalized for inclusion in the FY '81 MTDP covering FYs 1983-87.

CSO: 4120

MILITARY

GSDf TO DEPLOY MORE SAM SYSTEMS

Tokyo JPE AVIATION REPORT-WEEKLY in English 14 Nov 79 pp 6-7

[Text]

With planned procurement in FY '80 of one set, the GSDf will complete the L-90 35mm antiaircraft machine gun program and there seems no plans for replacements or replenishment although a project is under way for the AW-X self-propelled 35mm AA machine gun system, service adoption being scheduled for FY '87 or '88. The AW-X is intended to provide air cover for tank units.

For air defense at divisional levels, the GSDf appears to want more missile systems in place of conventional automatic weapons. The Sky Sweeper 75mm guns will be replaced by the Tan-SAM system and introduction of the Stinger-type shoulder-launched anti-aircraft missiles is under study as an individual infantry weapon.

Increased air defense power of the GSDf units will also be achieved through deployment of armored vehicles such as the MICV (mechanized infantry combat vehicle) system and the SR-SAM self-propelled vehicle.

CSO: 4120

MILITARY

GSDf TO ADOPT M110A2 203MM SPH

Tokyo JPE AVIATION REPORT-WEEKLY in English 14 Nov 79 p 7

[Text]

As a major item in its artillery reequipment programs, the GSDf plans to adopt the M110A2 203mm self-propelled howitzer of the US Army and preparations are now under way for selection of local manufacturers. Procurement of the weapon is scheduled to begin in FY 1981.

Japan Steel Works (Nihon Seikosho) will be selected as the manufacturer of the howitzer and related systems, but there are some problems in obtaining licenses for local production of the diesel engine. The US manufacturer of the engine is reportedly not interested in licensing while some quarters in the GSDf and industry believe the technical and quantitative requirements do not warrant license agreements for which fees and royalty payments would be required.

For local manufacture of the chassis, the prime contractor will be selected from Mitsubishi Heavy Industries, Hitachi or Komatsu.

It is expected that selection of the manufacturers of the 203mm self-propelled howitzer system will be made before the end of this year or early in 1980.

CSO: 4120

MILITARY

STATUS OF JDA'S R&D PROGRAMS

Tokyo JPE AVIATION REPORT-WEEKLY in English 14 Nov 79 pp 7-8

[Text]

Y. Omori, Director-General, TR&DI, JDA said last week that JDA's research and development programs were progressing smoothly and increased funds were expected over the next few years.

For FY 1979, engineering tests have already been completed successfully on the XASM-1 medium-range air-to-ship missile for the ASDF F-1 support fighter, the GSDF's short-range surface-to-air missile (Tan-SAM) training simulator, the secret land-to-ship facsimile transmission device, and the XJ/ALQ-6 airborne ECM equipment for the ASDF F-4EJ, Omori said. Tests on a new grenade and grenade-rifle, a new high-speed homing torpedo, a new OH (over-the horizon) communications system, a new fire control and command system for artillery, and a new surface target ship are expected to be completed by the end of March 1980 as scheduled, the TR&DI chief added.

Omori also revealed that the test program for the VSA (variable-stability aircraft) based on the Lockheed P2V-7 aircraft would be completed soon. Initial tests on the "dog-fight" air-to-air missile are to be conducted at Niijima range.

Omori said there are a total of seventy programs for FY 1980, including twenty-three development and forty-seven research programs. Funds for these programs total ¥25,675 million.

Development of a small turbofan engine for a future trainer started in FY 1975. For FY 1980, six prototype engines of the 1,6-ton thrust class will be ordered. An additional four units will follow in FY 1981. These will undergo tests during FYs 1982-83, Omori said.

Major development programs for FY 1980 include an electronic communications exchange system, the Chu-MAT antitank missile, a surface-to-ship missile, and a new main battle tank for the GSDF. Programs for the MSDF cover a high-speed homing torpedo, the Model 73 torpedo, an inertial navigation system, an ECM system for use with surface vessels, and an experimental mine-sweeping vessel with a reinforced plastic hull. ALQ-5 and -8 airborne ECM systems will be developed for the ASDF.

In addition to the above, in-house programs will be promoted for research on a low-recoil self-propelled gun, an antisubmarine torpedo, a precision guidance simulator, and anti-monitoring/jamming radio equipment. The "Theme Study" programs of the TR&DI include the CCV (control-configured vehicle), a laser radar, two types of portable surface-to-air missiles, and a low-recoil self-propelled gun.

The ALQ-5, under development since FY 1978, is scheduled for completion in FY 1984 for use with the C-1 ECM trainer. The ALQ-8 is intended for use with the ASDF F-15 fighter against the fire control system of hostile aircraft and also hostile SAM sites. It will be completed in FY 1982.

The laser-guided semi-active Chu-MAT for the GSDF is scheduled for completion in FY 1984. A new surface-to-ship missile for the GSDF, was developed from an ASDF air-to-ship missile, is to attack hostile ships in coastal waters from land bases and is scheduled to be completed in FY 1985, Otori said.

CSO: 4120

MILITARY

GSDF/TR&DI END TAN-SAM FIRING TESTS

Tokyo JPE AVIATION REPORT-WEEKLY in English 14 Nov 79 p 9

[Text]

The Ground Self-Defense Force (GSDF) and the Technical R&D Institute (TR&DI) of the Defense Agency finished firing tests of the Tan-SAM, a short-range surface-to-air missile, in October, bringing the Tan-SAM development project to its final stage.

In the firing tests, the core of operational tests for FY 1979 ending next March, some of the fired missiles are reported to have successfully hit target drones, showing excellent performance as expected.

The Tan-SAM is designed to cover the gap between the Hawk antiaircraft system and the 35mm L-90 antiaircraft machine gun to strengthen the GSDF's overall antiaircraft systems. Its development began under the 3rd Defense Buildup Program for FY 1967-71.

The GSDF/TR&DI will soon analyze radar and photo data collected through operational tests over the past two years and then check out the new missiles at a depot for service entry in FY 1980.

Following this, the GSDF is expected to take measures to deploy the new missiles in FY 1981 as originally planned. They are believed likely to be first supplied to the antiaircraft artillery (AAA) school.

CSO: 4120

MILITARY

JDA EAGER TO OBTAIN FUNDS FOR ENGINE FABRICATION

Tokyo JPE AVIATION REPORT-WEEKLY in English 14 Nov 79 pp 9-10

[Text]

The Japanese Defense Agency (JDA) will strive to obtain funds for fabrication of a small turbofan engine as a priority item for the Technical R&D Institute's (TR&DI) research and development in FY 1980 (April 1980-March 1981) in budgetary negotiations with the Finance Ministry.

A close look is expected to be taken at the JDA's research development budgets because the Finance Ministry is determined to hold the FY 1980 budget to the minimum in order to rebuild the national finances plagued by a huge deficit.

However, the JDA will give priority to the turbofan engine project because it has major bearing on development of the MT-X next-generation medium jet trainer to replace the present T-33 and T-1. If the funds are not authorized, the TR&DI will not have any major research and development projects regarding aircraft next fiscal year.

The necessity of the replacement in the late 1980s has already been acknowledged within the agency, although the MT-X project has not been authorized.

The JDA would have to start the MT-X project in FY 1981 to acquire new jet trainers in the late 1980s. The TR&DI's turbofan engine fabrication is seen as a key element in considering the MT-X acquisition scheme.

The Air Self-Defense Force is pushing discussions within the services and coordination of views with JDA internal bureaus to determine basic direction of the MT-X scheme.

Under the circumstances, JDA quarters apparently tend to back the TR&DI budgetary request for turbofan engine fabrication.

MILITARY

MSDF PLANS HSS-2B TACTICAL TRAINING CENTER

Tokyo JPE AVIATION REPORT-WEEKLY in English 21 Nov 79 p 6

[Text]

To prepare for service introduction of the HSS-2B antisubmarine helicopter, the MSDF plans to set up a tactical training center in FY 1980. The HSS-2B will be equipped with advanced sensors and data processing devices such as radar and dipping sonar and new tactical training centers are required for the new and sophisticated training syllabus. The center will cover search, detection, identification and attack sequences different from those for HSS-2 and -2A helicopters.

The training center will include computer-oriented systems for simulated antisubmarine warfare. Its cost is estimated near that of the HSS-2B helicopter or about ¥2,500 million.

The first training center will be installed at the MSDF's Tateyama air station.

CSO: 4120

MILITARY

MSDF STRIVES TO BUILD HARPOON-ARMED SUB

Tokyo JPE AVIATION REPORT-WEEKLY in English 21 Nov 79 p 6

[Text]

While the government is taking stringent financial policies for FY 1980, the MSDF hopes to obtain authorization for building one 2,200-ton submarine equipped with the Harpoon ship-to-ship missile system. Funds requested for the submarine amount to ¥29,590 million of the ¥179,014 million requested in FY 1980 for shipbuilding. It will be the first MSDF submarine to be equipped with the Harpoon system.

The MSDF is promoting plans to deploy the Harpoon SSM with its ships as a standard weapons system. All new destroyers are designed to carry the Harpoon SSM. Older destroyers will be modified so that they can be armed with the Harpoon under the FRAM (fleet rehabilitation and modernization) program. Plans to arm smaller ships with the Harpoon are also under study.

CSO: 4120

MILITARY

GSDFAH-1S STARTS FIRING TESTS

Tokyo JPE AVIATION REPORT-WEEKLY in English 21 Nov 79 pp 6-7

[Text]

The first Bell AH-1S antitank helicopter of the GSDF began firing tests of its weapons systems earlier this month. The Huey Cobra in its standard configuration is armed with eight Hughes BGM-71A TOW (tube-launched, optically tracked, wire-guided) antitank missiles, thirty-eight rockets and one 20mm machinegun.

The GSDF plans to complete evaluation tests of the single AH-1S by the end of March 1980 so that it will be able to finalize a procurement program for the first GSDF antitank helicopter squadrons.

Some quarters in the JDA, however, point out that the GSDF should complete tactical operation tests with two helicopters before preparing the procurement plan. A second AH-1S is scheduled for delivery in April 1980 to conduct such testing with the first helicopter. The tests are to be carried out during April through June.

It is uncertain whether the GSDF will be able to include the AH-1S procurement program in the FY 1980 draft budget. According to present plans, the GSDF intends to activate 3.5 squadrons with the AH-1S which will be produced locally.

CSO: 4120

MILITARY

GSDf WANTS VISUAL AIMING SIMULATOR

Tokyo JPE AVIATION REPORT-WEEKLY in English 21 Nov 79 p 7

[Text]

The GSDf is requesting about ¥2,000 million in the FY 1980 draft budget for procurement of various types of training equipment for weapons and radio equipment. Among them is a simulator for aiming visually antiaircraft machineguns such as the 12.7 mm and the Oerlikon L-90 35mm weapons deployed for base defense.

The simulator is expected to improve the skills of AA crews against low-flying hostile aircraft. Firing practices have been restricted by financial and other reasons. The first simulator, for which ¥150 million is on request, will be used by the GSDf AA School.

Another new type of equipment on request for funding in FY 1980 is a hit-miss indicator for the 106mm recoilless rifle.

CSO: 4120

MILITARY

TR&DI PLANS TO BUILD CRUISE MISSILE

Tokyo JPE AVIATION REPORT-WEEKLY in English 21 Nov 79 p 8

[Text]

The TR&DI, JDA, intends to begin full-scale development of a terminal guidance system for a SSM (surface-to-ship missile), the first Japanese cruise missile, in FY 1981. Basic study is now underway.

The SSM is scheduled to be developed jointly by MHI, KHI, and FHI as a cruise missile. The projected terminal guidance system for the SSM is required to be capable of distinguishing ships from those already damaged or sinking. It is also required to have ECCM (electronic counter countermeasure) capability.

It is learned that the system will be basically a computerized television monitoring/control system.

A joint design team will be formed by the three airframe manufacturers for the first Japanese cruise missile, completion of which is scheduled for FY 1985. The terminal guidance system for the SSM is tentatively called the Antiship/aircombat command system by JDA.

CSO: 4120

MILITARY

CARBON COMPOSITE MATERIAL TESTS SUCCESSFUL

Tokyo JPE AVIATION REPORT-WEEKLY in English 21 Nov 79 p 8

[Text]

Tests on carbon composite material for aircraft has proved successful, the TR&DI said earlier this month in its report for FY 1979. The TR&DI began basic studies on the material in FY 1974. Samples were manufactured in FY 1977, including rudders and doors for the nose-gear of the T-2 supersonic trainer, ground spoilers for C-1 twinjet tactical aircraft, and slat rails for the PS-1 antisubmarine flyingboat.

These samples were incorporated in actual aircraft and have been flight tested since FY 1978. Results so far are satisfactory in both structural and tensile strength. The rudder of the T-2 trainer also passed flutter tests. Data obtained through instrumentation show that these carbon composite material parts can be used with operational aircraft.

The TR&DI will continue evaluation tests until FY 1980.

CSO: 4120

MILITARY

OKI ELECTRIC AWARDED 'TASS' CONTRACT

Tokyo JPE AVIATION REPORT-WEEKLY in English 21 Nov 79 p 9

[Text]

Ok Electric Industry has been awarded a ¥253.5 million contract by the MSDF/TR&DI for final phase prototype fabrication of the TASS (towed array sonar system). A set of the recovery device will be delivered to the MSDF by the end of March 1980.

The TASS development program began in FY 1973 with fabrication of a receiver system, followed by studies on the towing cable in FY 1976 and fabrication of the system including sensors in FY 1978. With the recovery system on order from Oki, the MSDF plans to promote operational tests in FY 1980.

The MSDF plans to use the first two sets of the TASS in conjunction with the VDS (variable depth sonar) system. Further sets will be developed for operational use by surface vessels which are not equipped with the VDS. Costs of the TASS program are expected to total ¥2,000 million.

CSO: 4120

MILITARY

DECISION TIME FOR HAWK/NIKE REPLACEMENT

Tokyo JPE AVIATION REPORT-WEEKLY in English 28 Nov 79 pp 3-4

[Text]

During the FY '78 MDP (FYs 1980-84), the ASDF and the GSDF are scheduled to select a SAM-X, the replacement for the Nike-J and the Hawk air defense missiles, and FY 1980 is regarded by both services as decision time. Both services will send missions to the US in FY 1980 for a final survey on the SAM-X. Both plan to start procurement of the SAM-X in FY 1982.

The GSDF earlier this year sent a team to the US and made extensive studies on the US Army's SAM-D Patriot system which is being developed to replace both Nike and Hawk missiles. In the US, Nikes and Hawks are under control of a single service, which is the US Army. An interim report of the mission has already been completed and will be finalized before the end of March 1980 pending receipt of detailed information on the Patriot from the US Army.

Opinions in the GSDF call for adoption of the Patriot to equip four of the eight and a half SAM units since another program is underway for four and a half units to replace their Hawks with the IH (Improved Hawk) system. A second choice will be to expand the IH program so that all GSDF SAM units will be equipped with the Improved Hawk.

The IH system is in local production and the GSDF makes it a prerequisite for adoption of the Patriot.

The ASDF sent a mission to Europe and the US to study the SAM-X. In the US, the mission joined the GSDF team to study the Patriot. It also made a series of calls on McDonnell Douglas, Hughes Aircraft, Martin Marietta and other US manufacturers to discuss possibilities for cooperation when the ASDF plans to improve its Nike-J. MHI has started a company venture for an Improved Nike system.

It is believed that the first choice of the ASDF is for the Patriot, with the Improved Nike second. Although the ASDF mission made studies on an Euromissile system chances appear remote for the European system, sources say.

If the Patriot is selected by both the ASDF and the GSDF, reorganization of the SAM units of the Self-Defense Forces will be required for operation of the common weapons system for point and area defense missions currently divided by the GSDF and the ASDF.

Detailed information will not be available to the ASDF and the GSDF unless and until they commit themselves to a great extent to, say, the Patriot, or the Improved Nike.

In this regard, both services will be forced to make a decision prior to sending final survey missions to the US in the first half of FY 1980.

In any event, the GSDF plans to start procurement of the SAM-X in FY 1982 at an annual rate of one unit for a total of four units. The ASDF likewise plans to begin procurement of the SAM-X in FY 1982 at a similar rate. It is not certain, however, whether all six Nike-J units will be equipped with the SAM-X in the light of operational and financial requirements.

CSO: 4120

MILITARY

ASDF PLANS FOR F-4EJ IMPROVEMENT

Tokyo JPE AVIATION REPORT-WEEKLY in English 28 Nov 79 pp 4-5

[Text]

As an economical effort to increase the strength of its fighter squadrons, the ASDF is studying ways to improve the F-4EJ fighters which make up six of the ten fighter squadrons for the '80s.

Present plans call for modification of the Phantom airframe for a new fire control system and related equipment under FY 1981 funding. The prototype of the modified F-4EJ will be tested during FYs 1982 through 1983. Modification of all Phantoms will follow and the ASDF expects the modified F-4Es to enter service status in FY 1985.

Major programs for modification include replacement of the current APQ-120 fire control system of the F-4EJ for an improved type to which "look down" capability will be added. This is expected to improve combat performance of the Phantom to that of the F-15s and also enable the F-4EJ to carry and fire advanced air-to-air missiles common to the F-15. Similar plans are reportedly underway by the USAF. Since an improved type of the APQ-120 FCS will not differ greatly from the original system in size and weight, modification of the airframe will not require extensive work. It is estimated that a modified F-4EJ will be ready for flight tests one and a half years from the contract date.

The average service life of the F-4EJ is set at 3,000 flight hours or twelve to thirteen years. This means that the ASDF Phantoms will be withdrawn from service beginning in or around FY 1985. Modification will serve to improve performance and also to extend the service life of the Phantom by several years.

MILITARY

ASDF PLANS FOR NEW SURVEILLANCE RADARS

Tokyo JPE AVIATION REPORT-WEEKLY in English 28 Nov 79 p 5

[Text]

The ASDF is promoting deployment of new surveillance radars such of the F3D and M3D series, following procurement of seven FPS-1 fixed three-dimensional radar units and two mobile 3-D radar units. At the same time, development of advanced radar systems are being planned to replace FPS-20 and FPS-6 series to cope with modernization of the ASDF's BADGE (base air defense ground environment) system, service introduction of the F-15 interceptor fighter, and also planned improvement of the Nike-J surface-to-air missile system.

A new radar system for the ASDF radar sites will be a phased-array type of advanced technology. One plan calls for engineering and prototype fabrication during FYs 1981 through 1982. After a two-year test and evaluation period, the new radar system will be placed in production in or around FY 1985.

The TR&DI has already tested elements of a phased-array system for S and X bands.

CSO: 4120

MILITARY

HIGH-SPEED TARGET DRONE FOR TAN-SAM

Tokyo JPE AVIATION REPORT-WEEKLY in English 28 Nov 79 pp 5-6

[Text]

The GSDF plans to adopt the Tan (Short)-SAM in its standard weapons system inventory in FY 1980, following successful conclusion of test programs in October. The Tan-SAM is designed to counter targets flying at medium altitudes, while those flying at higher or lower altitudes are covered by the Hawk SAM and the L-90 35mm AA machine gun system.

For firing tests, the low-speed R CAT and the high-speed Chukar II drones were used to simulate targets for the Tan-SAM. Operation of the Northrop MQM-74C Chukar II for tests were contracted to a private firm although the drone was procured by the GSDF.

With planned adoption of the Tan-SAM in FY 1980, however, the GSDF plans to procure ground facilities for operation of the Chukar II as well as drones to train crews. A decision to procure the complete Chukar II high-speed target drone system is expected by the end of March 1980.

CSO: 4120

MILITARY

NEW GSDF COMMAND/COMMUNICATION VEHICLE COMPLETED

Tokyo JPE AVIATION REPORT-WEEKLY in English 28 Nov 79 p 6

[Text]

The first four units of a new Command/Communication armored vehicle for the GSDF will be rolled out of a Komatsu Ltd. plant in December, signaling completion of the first designed and built by Japan.

The three-axle six-wheel vehicle can accommodate eight personnel including a unit commander. It will be equipped with radio communication systems for operation with armored or artillery units. It will have a maximum road speed of 100km/h, enough to ensure high mobility and survivability. The GSDF plans to complete test programs for the vehicle by April 1981 and start quantity production in or around 1982.

Another version of the vehicle is the Reconnaissance/Scout vehicle. The first two units are also under construction at Komatsu for completion in February 1980. Armed with a 20mm machine gun, the Recon/Scout vehicle will be operated as an escort to the Command/Communications vehicle.

CSO: 4120

MILITARY

BRIEFS

ASDF PROMOTES AUTOMATED RAPCON--The ASDF is promoting plans to automate the RAPCON (radar approach control) systems for its airbases. In FY 1978, the system at Chitose base was modified for automated control and similar work is underway at present at Hyakuri. Matsushima base, however, which will receive a completely new automated RAPCON system. About 1,500 million yen is on request for FY 1980 for the system at Matsushima. This amount includes 700 million yen for a computerized automatic data processing system. [Text] [Tokyo JPE AVIATION REPORT-WEEKLY in English 28 Nov 79 p 5]

MODERNIZED 74 MBT--While system integration is planned in FY 1980 for a new main battle tank tentatively called the Model 88 MBT, the GSDF plans to modernize the Model 74 current main battle tank by incorporating new technology and expertise gained from the Model 88 MBT development program. The GSDF/TR&DI have conducted extensive research and engineering on the Model 88 MBT which is to be among the top tanks of the world. Utilization of a new eight-cylinder diesel engine, 105mm APDSFS ammunition technology, bullet-proof ceramic materials, and other components developed for the Model 88 is expected to put the Model 74 back in the front ranks of the world's modern tanks. [Text] [Tokyo JPE AVIATION REPORT-WEEKLY in English 28 Nov 79 p 6]

NEW 155MM HOWITZERS ADOPTED--Following adoption of the US Army M10A2 203mm self-propelled howitzer, of which procurement is scheduled to start in FY 1981, the GSDF plans to replace its 155mm howitzers. At present, the M198 of the US Army, the FH77 of Sweden, and the FH70 common to the British, West German and Italian armies are being studied. The GSDF has already sent requests for proposals. Procurement of a new 155mm howitzer is scheduled for 1982. The GSDF intends to mate a longer-barrel gun with the Model 75 155mm HSP system to realize the Model 75 Mod(ified) 155mm HSP for a greater range and power. The same new gun will also replace the current tractor-drawn 155mm howitzers. The GSDF expects that information on the weapons will be available for a decision early in 1980. [Text] [Tokyo JPE AVIATION REPORT-WEEKLY in English 21 Nov 79 pp 7-8]

GRX-2 HIGH-SPEED HOMING TORPEDO--The MSDF/TR&DI expect that a full-scale engineering program will be authorized in FY 1980 for development of the GRX-2 high-speed homing torpedo. The study for a submarine-launched high-speed homing torpedo started in 1967. Extensive efforts have been made in the past decade for designing, fabrication and testing of major components and subsystems and the MSDF/TR&DI are confident that the GRX-2 will become a successful weapon. The projected torpedo is primarily for use against hostile submarines but it is also effective against surface ships. Funds on request in the FY 1980 budget draft total 3,630 million yen. [Text] [Tokyo JPE AVIATION REPORT-WEEKLY in English 21 Nov 79 p 9]

BADGE SYSTEM STUDY--Under the FY '78 MTDP, the ASDF is promoting plans for modernization of the BADGE (base air defense ground environment) system for improved air defense operations. For FY '80, the first year of the FY '78 MTDP, the ASDF hopes to obtain authorization of 470 million yen to begin a system study on the BADGE following detailed investigation on capabilities of the present system which will be concluded in January or February 1980. If the FY '80 funds for the system study are not authorized, ASDF's plan to start work for a modernized BADGE or the BADGE-X in FY '82 will have to be postponed. Modernization of the BADGE system is a long-term project of the ASDF to meet service introduction of the F-15 fighter, and the E-2C airborne early warning aircraft. [Text] [Tokyo JPE AVIATION REPORT-WEEKLY in English 14 Nov 79 p 4]

FY 1979 MISSILE ORDERS--Of the guided weapons systems for procurement in FY 1979, missile systems in local production will be contracted by JDA during the third and fourth quarters. For the GSDF, the third contract for the Improved Hawk SAM missile will be concluded. Orders for the Sea Sparrow ship-to-air missile will be issued for the MSDF destroyers as a part of a current program. The fifth contract will be concluded for AIM-7E Sparrow air-to-air missiles for ASD⁷ Phantoms. Both Sparrow and Sea Sparrow are in production by MELCO and the latter will be placed on order ahead of the Sparrow and the Improved Hawk. [Text] [Tokyo JPE AVIATION REPORT-WEEKLY in English 14 Nov 79 p 5]

SH-60B EYED FOR ADOPTION--The MSDF plans to finalize studies on the SH-X, a replacement for the HSS-2B shipborne helicopter, during the FY '78 MTDP and procurement of two sample units in FY 1981 is being considered for evaluation. At present, the MSDF appears most interested in the Sikorsky SH-60B US Navy LAMPS MK III helicopter, the prototype of which has recently been rolled out. Other candidates for the SH-X include the Royal Navy's WG-13 and the French Navy's new turbine helicopter. Full-scale study on these shipborne helicopters will be conducted in 1980. [Text] [Tokyo JPE AVIATION REPORT-WEEKLY in English 14 Nov 79 pp 5-6]

CLGP, GUIDED BOMBS PLANS--To meet future requirements of the Self-Defense Forces, the TR&DI is currently studying plans to develop the CLGP (cannon-launched guided projectile) and a guided bomb, both of which will home on target, using lasers. Development of the guided weapons is planned by combining conventional projectiles and bombs with new guidance systems. Development of the CLGP with US Army's M109 and M198 155mm howitzers as well as the GLGP (gun-launched guided projectile) for the US Navy's 5 to 8-inch shipboard guns is under way in the US. Laser-guided bombs were among the "smart" bombs used by the USAF in Vietnam, the other type being electro-optical or TV-guided. According to present plans, the TR&DI will start development of the laser-guidance system in or around FY 1981 for completion in about six years. Cost is estimated at about 2,000 million yen. [Text] [Tokyo JPE AVIATION REPORT-WEEKLY in English 14 Nov 79 pp 8-9]

CSO: 4120

ECONOMIC

AIRBUS INDUSTRIE EXPRESSES INTEREST IN Y-XX PROJECT

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Oct 79 p 1

[Text]

Two Airbus Industrie executives expressed positive interest in the Y-XX project during their tour of Japanese airframe manufacturers such as MHI, KHI, and FHI earlier this month in an effort to "sound out" Japanese industry to their preliminary ideas which may result in an Airbus Industrie's proposal for a joint program, according to local sources.

F. Chanut, Assistant to Vice President, New Aircraft Program, and W. Pahlke, Assistant to Director, Production, respectively, of Airbus Industrie, offered possibilities of a joint program to develop an advanced 160-passenger twinjet airliner between the European consortium and the Japanese aircraft industry, during their discussions with local airframe manufacturers. Airbus Industrie is the second foreign firm that has expressed interest in the Y-XX project. The other was Fokker Aircraft.

General configuration of the "single-aisle aircraft," as defined by the Airbus Industrie officials, covers a conventional-body aircraft with single-aisle six-abreast seating in the cabin and carry up to 160 passengers on short-to-medium flights. The engine proposed is the CFM56 turbofan currently under development at CFM International. As a new-generation airliner, the aircraft will feature low-noise and low fuel consumption characteristics. Airbus Industrie, it has been learned, expects to launch the program in 1981, pending marketing and engineering efforts for about a year, local sources say.

The suggested manner of participation in the joint program calls for entry of Japan into the European consortium as a full partner, taking part in all aspects of activities from designing through testing, manufacturing, and sales. Japanese participation, however, is limited to 25 percent. Incidentally, an unofficial plan offered to the Japanese Government in the course of past meeting with the EC allocated the required investment funds 28 percent each to Aerospatiale and MBB, 20 percent each to British Aerospace and Japan, and four percent to CASA, according to Japanese sources.

The latest move by Airbus Industrie to the Japanese industry implies a change of the JET (Joint European Transport) concept to a new international venture, possibly stimulated by Fokker's proposal to Japan for joint development of the F29 (Super F28).

ECONOMIC

FOKKER CHAIRMAN REVISITING COUNTRY FOR Y-XX PROPOSAL

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Oct 79 pp 1-2

[Text]

Chairman Francois Swarttouw of Fokker Aircraft Co. arrived here last week for the third time in his aggressive efforts to finalize Fokker's proposal to Japanese industry for joint development of the F29 (Super F28) 132-passenger twinjet airliner. Fokker's proposal made earlier this year calling for participation of the Japanese and Boeing and for the engine to be developed jointly by the Japanese and Rolls-Royce.

Swarttouw's visit this time is expected to iron out various pending problems notably the reaction of Boeing Commercial Airplane Co. to the Fokker project. He visited Boeing in September.

Swarttouw reportedly told MITI officials that Boeing had agreed to supply the fuselage of the aircraft as a subcontractor. Boeing's interest in the Fokker project, however, is apparently not very positive. A MITI official concerned with the Y-X (Boeing 767) project and the aircraft industry, during his visit to Boeing in late September, was informed Boeing welcomes expanded business relations with Japanese industry and is not adamant in providing assistance to the Japanese in projects such as the one Fokker proposes. But, Boeing is expected to start marketing in 1985 an advanced version of the Boeing 737 twinjet powered by either the XJB or the CFM56 turbofans. The project per se conflicts with the Fokker F29.

MITI officials have refrained from making any commitment, but told Swarttouw that the Japanese industry would send a delegation to Europe early next year to study new aircraft projects, including the Fokker's.

The Fokker F29 is a short-to-medium range airliner based on the F28, for accommodation of 115 to 130 passengers in five-abreast or six-abreast seating configuration with a maximum capacity of 150 passengers. Prototype aircraft are planned to be fabricated during the period, 1981 through the summer of 1983. The aircraft is scheduled to be certificated in early 1985, to be immediately followed by delivery of first production aircraft.

About \$800 million is estimated for development of the F29. Japan will be required to put up one third of the amount as a risk-sharing partner.

ECONOMIC

KHI GAINS COMMITMENTS FOR 70 BK-117S

Tokyo JPE AVIATION REPORT-WEEKLY in English 24 Oct 79 pp 2-3

[Text]

Kawasaki Heavy Industries has received letters of intent and options for about 70 of the BK-117 twin-engine, multi-mission helicopters developed jointly with MBB of West Germany. This was revealed when KHI carried out demonstration flights and ground display of the new helicopter at its Gifu factory Oct. 9 with about 200 people invited.

The firm has already obtained options on 48 aircraft. Letters of intent for four to five have been received from Oceania. Furthermore, it obtained similar letters for 15 to 16 on the occasion of the Paris Air Show last June.

The price of the BK-117 is ¥190 million on condition that a firm order is placed one year before delivery. However, the price of the helicopters for delivery after July 1982 is expected to increase by more than 10%.

Since the signing of a contract on joint development of the BK-117, KHI and MBB have manufactured four prototype helicopters--P-1, P-2, P-3, and P-4--for flight, ground and fatigue tests.

In the ground tests by the P-1, KHI has finished vibration, function and engine tests and a 50-hour substantiation test. A 250-hour substantiation test started in October and 1,200-hour test is planned for next year.

As for KHI's fatigue tests by the P-4, falling tests have been completed and the first-stage static load tests will finish by the end of this year. The second-stage static load and partial fatigue tests will be made from the beginning of 1980 to next September.

The P-2 and P-3 prototypes have been used for flight tests by MBB and KHI respectively. The former carried out its first flight last June 13 and the latter last Aug. 10.

KHI and MBB plan to acquire Japanese and German VFR type certificates for the BK-117 helicopter at the end of next year and the IFR type certificates by the end of 1981.

They completed a design of the preproduction SO1 helicopter at the end of last September. This type will be manufactured from now for flight tests starting next summer.

Designing of production aircraft is planned to end in March 1980 for actual manufacturing from April. Delivery of production aircraft will begin in September 1981.

CSO: 4120

ECONOMIC

FOKKER CHAIRMAN PUSHES F29 PROJECT

Tokyo JPE AVIATION REPORT-WEEKLY in English 31 Oct 79 p 2

[Text]

Chairman Francois Swarttouw of Fokker Aircraft, as reported last week, made a series of visits with three airframe manufacturers (MHI, KHI, FHI), Civil Transport Development Corp. (CTDC), and MITI to seek Japanese participation in the Fokker F29 development project.

In what is regarded a last-ditch effort to the Japanese, Swarttouw emphasized that the F29 twinjet airliner should be placed on the market in 1985 in order to make the project a success. Regarding Boeing's reaction to Fokker's multi-national project, Swarttouw revealed that Boeing has agreed to supply fuselages, of the Boeing 737 type, for the F29 aircraft as a subcontractor while retaining rights to develop and produce a 737 with new engines.

Other details of Fokker's proposal, according to sources, call for development and production of the wing by the Japanese and Japanese investment of over one-third of the development cost estimated to total \$700 to 800 million in 1979 currency value. The engine proposed for the F29 is the XJB, a new turbofan which will be projected for joint development by Rolls-Royce and Japanese manufacturers in about seven years. Negotiations on the XJB project are entering their final stage.

The Fokker Chairman, according to sources, reiterated the importance to market the F29 no later than 1985 and specified June 1980 as the deadline finalizing specifications.

Confronted with Fokker's latest proposal with a time limit for decision making, the Japanese manufacturers generally appear rather prudent. "Unless we are sure of profitability," said a top executive, "we cannot readily commit ourselves to such international ventures as this one."

Swarttouw is scheduled to visit Japan for the fourth time, in November, in his efforts to push the F29 project.

ECONOMIC

JDA TO ORDER RPV FROM FHI

Tokyo JPE AVIATION REPORT-WEEKLY in English 31 Oct 79 p 3

[Text]

The Japanese Defense Agency (JDA) is expected to soon order an experimental remotely piloted vehicle (RPV) from Fuji Heavy Industries (FHI) to start full-scale research and development of the new RPV.

The RPV is designed to fly in compliance with a pre-fixed program performing various missions including reconnaissance by television cameras. The television system will be fabricated by Hitachi, Ltd.

By using the experimental RPV, JDA will explore the possibility of the RPV being used for reconnaissance, surveillance and targeting as requested by the three services. The unmanned plane can fly over dangerous areas because of its maneuverability and operational costs and is attracting attention overseas as well.

JDA has so far wanted to develop the RPV only for targeting, and the Ground Self-Defense Force (GSDF) has introduced the Northrop Chukar II of the United States as a target drone for the Tan-SAM surface-to-air missile. However, the RPV is planned to be used for reconnaissance as well as targeting.

Out of various components of the new RPV system, the control system will be made by Japan Aviation Electronic Industry Co., the flying program by Nippon Avionics Co., the auxiliary propulsion system by Daicel, and a ground control aid by Nippon Electric Co. (NEC). The engine for the RPV is planned to be imported from the United States.

The new RPV is also expected to become a Japanese export item for civil applications as it is said to contain many of Japan's highly potential electronic technologies. Private industries are placing great expectations on research and development for the new RPV.

CSO: 4120

ECONOMIC

MITI TO PROMOTE INNOVATIVE AIRCRAFT DEVELOPMENT

Tokyo JPE AVIATION REPORT-WEEKLY in English 7 Nov 79 pp 3-4

[Text]

The Ministry of International Trade and Industry (MITI) has decided to set up a committee in the private Society of Japanese Aerospace Companies (SJAC) to promote development of unique aircraft for the 21st century.

This is part of its machinery industry promotion plan for FY 1980 now being considered.

MITI has already incorporated expenses for development of the YX and a commercial aero engine, and a big government-sponsored program for research and development of the FJR engine into its budget requests for FY 1980 on the basis of an interim report on future aircraft industry policy issued by the Aircraft Division, Aircraft and Machinery Industry Council, last August.

Apart from this, establishment of the committee is based on a report of a study group for trade and industry policies in the 1980s, which was given to the Industrial Structure Council in the same month.

The report recommended in a chapter covering the aircraft industry that the government prepare for development of unique aircraft through promotion of basic research and development of technologies, noting full-scale technological innovation is expected in the 1990s.

The committee will comprise six divisions on aircraft processing methods, especially electron beam welding and laser processing; composite material and other aircraft materials; engines, inclusive of hydrogen engines; aircraft types; air traffic systems or relations between aircraft and airports; and aircraft control instruments and electronic parts.

It will study the basic direction of aircraft technology development up to the 21st century. Based on the study, the ministry will consider overall aircraft system guidelines in the future.

ECONOMIC

JDA AND INDUSTRY CONCERNED ON F100 ENGINE

Tokyo JPE AVIATION REPORT-WEEKLY in English 7 Nov 79 p 4

[Text]

Recent reports on deficiencies of the Pratt & Whitney F100 engine, the powerplant of the USAF F-15 and F-16 fighters, have aroused concern among JDA and Japanese manufacturers involved in the ASDF F-15 production program. Their attitude in general, however, is to proceed with the work schedule while awaiting clarification of the problem by the USAF and Pratt & Whitney.

The Japanese F-15 program started in FY 1978 with the first order for twenty-three aircraft including eight to be imported. MHI, as the prime contractor, received a ¥55,400 million order for fifteen aircraft, thirty-five percent of the work being subcontracted to KHI. For manufacture of thirty-two units of the F100 engine, IHI was awarded a ¥21,400 million order. The work was subcontracted 20 percent each to MHI and KHI. The reported defects in the F100 engine, therefore, are of common concern to both Japanese airframe and engine manufacturers, and JDA as well. JDA is to procure 100 F-15 fighters in the next decade.

IHI has made preparations for F100 engine production up to such a level as to begin manufacture of parts and components before the end of this year. The company will take delivery of imported gauges and meters for the engine by April 1980 so that major assembly of the F-15 engine can start in late 1980.

MHI has installed thirty percent of the jigs and tools needed for airframe assembly. The company plans to begin manufacture of parts in February 1980. Other firms concerned are also making preparations as scheduled.

While waiting for detailed information on the alleged defects in the F100 engine, a JDA spokesman said that it is not unusual for a new engine to suffer from teething troubles. He admitted that there were some initial problems but he pointed out that the "accident rate" of the engine is less than half that of comparable engines. He expressed hope the troubles would be overcome by the time the engine accumulates one million flight hours in service. It is only 36,000 hours since the engine was placed in service, he remarked.

ECONOMIC

MITI CONTEMPLATES SUBSIDY TO MATERIAL MANUFACTURERS

Tokyo JPE AVIATION REPORT-WEEKLY in English 7 Nov 79 p 5

[Text]

As a part of the FY '80 programs to assist the machine industry, MITI is contemplating subsidies for manufacturers of processed metal material used in production of aircraft. The plan is in response to recommendations outlined in an interim report of the Aircraft Division of the Aircraft and Machinery Industry Council, an advisory body to MITI. Subsidies are planned to cover expenses for research and test programs for improvement of processing technology on aluminum, titanium, and other metal structural material for aircraft.

The Japanese aircraft industry for the next decade is promoting a number of production programs covering the Y-X (Boeing 767) airliner, the F-15 fighter, and the P-3C antisubmarine aircraft, for which steady supply of processed metal material will be required. But, the international supply situation is becoming more serious and a lead time of over three years is required for some types of material.

Boeing Commercial Airplane Co. made investigations last April on the capacity of Japanese material manufacturers in an effort to secure a second supply source in Japan. Kobe Steel, Furukawa Aluminum, Sumitomo Light Metal Industry, and Nittoku Metal Industry were inspected by Boeing specialists.

The metal material manufacturers in Japan, however, have not been so enthusiastic as to expand their capacities or to invest in research for improved processing technologies on the grounds that the Japanese market is too small to warrant such efforts.

Now that the Japanese aircraft industry requires an increased supply and Boeing looks to Japan as a second supply source, MITI plans to aid the material manufacturers to grow into international suppliers of highly technical material for aircraft production.

CS0: 4120

ECONOMIC

NEW AIR ROUTES OVER KANSAI EFFECTIVE FROM 10 DECEMBER

Tokyo JPE AVIATION REPORT-WEEKLY in English 14 Nov 79 p 1

[Text]

The Ministry of Transport (MOT) has notified agencies concerned new air routes will be introduced over the Kansai district from Dec. 10 as part of Japan's first extensive reorganization of domestic air routes.

It plans to adopt newly-organized routes over Kyushu and Kanto next spring and other districts by the end of FY 1980 or March 1981.

The reorganization aims at promoting air traffic safety and fuel efficiency by establishing double-tracked, straight (direct) routes for one-way traffic because large, high-speed passenger jets are increasing.

The current air routes, set up in the piston aircraft age, extend from old-fashioned non-directional beacons (NDBs) built shortly after World War II by American forces.

Almost all of the NDBs have been replaced by VHF omni-directional radio ranges (VORs). Sixty-two VORs now in operation can cover all of the nation's domestic air routes.

In view of this, MOT began a review of existing air routes a year ago to reorganize them. It has tried to change trunk lines into one-way traffic routes in principle and make all routes direct.

flights on trunk and nontrunk routes and short-range international charter services, and TDA flights on nontrunk and partial trunk routes.

In the past seven years, however, passengers on nontrunk routes have increased faster than those on trunk routes. Furthermore, the United States' liberalization of its civil aviation policy has forced Japan to have more than one airline providing international service.

As present policy has become inadequate, the three airlines have asked the Transport Ministry to review it. Moriyama's instruction has apparently triggered their increased competition for expanded rights.

CSO: 4120

ECONOMIC

THREE AIRLINES TO VIE OVER EXPANDING SERVICE

Tokyo JPE AVIATION REPORT-WEEKLY in English 14 Nov 79 pp 1-2

[Text]

Japan Air Lines (JAL), All Nippon Airways (ANA) and Toa Domestic Airlines (TDA) are likely to resume their efforts, for the first time in seven years to expand domestic air service rights as Transport Minister Kinji Moriyama has instructed internal bureaus of his ministry to review today's civil aviation policy.

The instruction came in October following the ministry's rejection of JAL's request for permission to pick up passengers on domestic routes by planes flying international routes.

JAL, failing to obtain the right, wants to enter nontrunk domestic air routes. ANA whose international charter flights have been reduced by Transport Minister Moriyama hopes to obtain permission for charter flights to the whole of Southeast Asia and regular international services, while TDA intends to fly its airliners on the Osaka-Kagoshima and Tokyo-Matsuyama routes presently occupied by ANA.

Under the current civil aviation policy adopted in 1972, JAL is allotted international flights and services on domestic trunk routes linking Sapporo, Tokyo, Osaka, Fukuoka and Okinawa, ANA

CSO: 4120

ECONOMIC

KHI, MHI TO START BOEING 767 OUTPUT IN MID-NOVEMBER

Tokyo JPE AVIATION REPORT-WEEKLY in English 14 Nov 79 pp 2-3

[Text]

Kawasaki Heavy Industries, Ltd. (KHI) and Mitsubishi Heavy Industries, Ltd. (MHI) will start production of Boeing 767 parts, in the middle of November, bringing the big aircraft project to the production stage.

Since the conclusion of a contract for Boeing 767 development, they have expanded their facilities to prepare for production of F-15 fighters and P-3C antisubmarine patrol planes for the Japanese Defense Agency as well as Boeing 767 components. With investment of about ¥15,000 million in the past three years, they have set up new plants in Aichi prefecture to complete their production arrangement.

As for development designs for the Boeing 767, they finished basic designs late last June. About 90 percent of detailed designing has already ended. Metallurgical instruments for aircraft manufacturing are also ready.

They will initially manufacture parts for 32 aircraft--two for prototypes and 30 for production aircraft. These parts will be delivered to Boeing Co. next August for assembling.

KHI will produce front and middle sections of the fuselage and main wing ribs, and MHI rear sections of the fuselage and cargo doors. Fuji Heavy Industries, Ltd. (FHI), another Japanese participant in the Boeing 767 project, will begin to produce main wing fairings next March for delivery in August.

Boeing has received firm orders for 125 Boeing 767s and commitments for 118 from seven airlines of the U.S., Canada and Japan. Among Japanese airlines, All Nippon Airways (ANA) decided to order 40 early last October.

The initial 767 production target is fixed at 500 aircraft. If this target is achieved, the three Japanese firms' production would be valued at about ¥135,000 million in terms of 1978 prices-- ¥60,000 million for MHI, ¥55,000 million for KHI and ¥20,000 million for FHI. Of the total, Shin Meiwa Industry Co. and Japan Aircraft Mfg. Co. as subcontractors will account for about ¥1,800 million and ¥2,800 million.

CSO: 4120

ECONOMIC

THREE ALUMINUM PRODUCERS TO DEVELOP SUPER DURALMIN

Tokyo JPE AVIATION REPORT-WEEKLY in English 14 Nov 79 p 3

[Text]

Kobe Steel, Ltd., Sumitomo Light Metal Industries, Ltd. and Furukawa Aluminum Co. have decided to carry out joint research and development of extra super duralmin from FY 1980 starting next April for use on the Boeing 767.

This responds to the Ministry of International Trade and Industry's adoption of a policy for promoting domestic aircraft manufacturing technology.

The three aluminum firms also plan to establish techniques for producing polished covering which are a major item for the 767 to help boost the Japanese aircraft industry's position in international aircraft development projects.

As to extra super duralmin, they will exchange information with each other while developing different kinds of the aluminum alloy. Kobe Steel will deal with the 7,715-count extra super duralmin for forged aircraft material, Sumitomo Light Metal the 7,475-count type for sheeting and Furukawa Aluminum the 7,050-count type for forged and pushed materials.

Within 1980, they plan to finish all stages of development of crude material, forging, heat treatment and fabrication of aircraft materials.

Development of polished covering has been under way by the three firms since the beginning of the current fiscal year. They plan to establish production techniques, which are now monopolized by an American company, in FY 1980.

The polished material, a flat polished duralmin sheet, accounts for 25 percent of materials for the 767. As Japan lacks technology for making large-size polished materials, it will have to import the item for initial production in Japan of new aircraft parts and components starting in the middle of November.

ECONOMIC

MITI ADVISORY BODY TO DISCUSS PLANS FOR FY 1980

Tokyo JPE AVIATION REPORT-WEEKLY in English 14 Nov 79 pp 3-4

[Text]

The Aircraft Div., Aircraft & Machinery Industry Council, MITI will hold the fifth meeting of its Policy Sub-Committee on November 15 at the Prince Hotel in Tokyo to discuss plans for FY '80.

MITI will present its budgetary plans for FY 1980 which include 1) ¥7,465 million subsidy (plus ¥694 million on the follow-on disbursement basis) to the Y-X (Boeing 767) joint development and production program, 2) ¥2,643 million subsidy (plus ¥1,723 million follow-on disbursement) to the Anglo-Japanese jet engine joint development project, and 3) ¥2,687 million subsidy to the national aero engine development program which will enter its fifth year in 1980.

Talks between Rolls-Royce Limited and three Japanese aero engine manufacturers are presently in their final stage for a joint program to develop an advance turbofan for airliners. The national development program for the FJR engine will finish with work in FY '80 and efforts will be switched to the Anglo-Japanese joint program.

MITI at the same meeting will report on the situation in the world's aircraft industry to provide the basis for discussion on the Y-XX project, a national development project for a short-to-medium haul jetliner for 100 or more passengers recommended in the interim report issued in August this year by the Subcommittee. Fokker Aircraft of the Netherlands and Airbus Industrie have made proposals to Japan to jointly develop such airliners. Top executives of these companies are to visit Japan shortly to seek an early decision.

In the light of the prevailing atmosphere, however, it is not certain that the meeting will reach any decision on these proposals. The leading opinions in the industry call for spot investigation of the world's aircraft industry before a full-scale study on these proposals starts.

CSO: 4120

ECONOMIC

AIRBUS WELCOMES GOVERNMENT PARTICIPATION IN NEW PROGRAM

Tokyo JPE AVIATION REPORT-WEEKLY in English 21 Nov 79 pp 2-3

[Text]

Top executives of Airbus Industries told a press conference in Tokyo last week that the European consortium is in contact with officials of the Japanese Government and local industry on collaboration in a new aircraft program which it plans to launch in the near future. Called the single-aisle twinjet program, it envisages the development of 120 - 160 seat short-to-medium range aircraft.

John B. Cognard, executive vice president of Airbus Industrie, told reporters that Japan would be able to participate as a full member in all fields of the program, ranging from basic designing, research and development to marketing, sales and servicing. He said worldwide demand for such aircraft is estimated at 1,500 to 2,000 in the 1990s, because such present aircraft as the McDonnell Douglas DC-9, Boeing 737 and many of the turbo-props in service would be phased out by the time the program is in full swing.

Roger Chanut, assistant to executive vice president and A300B2 and B4 program manager, said that Airbus Industrie had proposed that Japan participate in the single-aisle jet program because the Y-XX which Japan plans to develop would be very similar to the aircraft Airbus has in mind. He added that more extensive technical studies and market surveys would be required before the program is launched, probably in about a year and a half to two years.

Cognard said Airbus Industrie could launch the new program alone within the present framework of the consortium, but Japan's participation would make it much easier for the consortium to promote development, production and marketing activities because of its financial and industrial resources. Japan's participation would also contribute greatly to the sales of the aircraft in this part of the world where huge markets exist.

Cognard also told the press conference that Airbus Industrie successfully broke the American monopoly in Japan for the first time in 20 years when it sold nine A300B2 widebody aircraft to Toa Domestic Airlines this year.

Within the last 30 months, Airbus Industrie has increased its order book considerably. From some 60 A300s sold or taken on option by ten customer airlines in the spring of 1977, it had risen to 390 by the end of October, thus adding 330 orders and options for the A300 and the new A310, and 21 new customers, Cognard said. In these two years and a half Airbus Industrie multiplied by six its orders and options and by three its customers. In 1978 Airbus Industrie received 82 new orders and options, and nine new customers. During the past ten months of this year, it has received 220 new orders and options and 12 new customers, he said.

Airbus Industrie has now become the world's second largest civil aircraft manufacturer, second only to Boeing, Cognard added.

ECONOMIC

ROLLS-ROYCE EXECUTIVES TO VISIT FOR JOINT PROJECT TALKS

Tokyo JPE AVIATION REPORT-WEEKLY in English 21 Nov 79 pp 3-4

[Text]

A.R.G. Raeburn, Vice Chairman, and R. H. Robins, Commercial Director, of Rolls-Royce Limited, are scheduled to be in Tokyo during the middle of November to further promote talks with Japanese manufacturers on the XJB aero engine joint development project. The Anglo-Japanese project is for an advanced high-bypass ratio, low-noise and low-fuel consumption turbofan engine of 8 to 9 tons of thrust for new airliners.

The visit of the Rolls-Royce executives follow higher-level talks held earlier this month in the United Kingdom between executives of MHI, KHI, and IHI, and Rolls-Royce on the project first proposed by the British company. According to the Japanese, recent talks in the UK have solved almost all the major problems including use of knowhow provided by Rolls-Royce to the Japanese, for projects other than the XJB. Rolls-Royce's request for a work share in other projects is basically acknowledged by the Japanese, sources report. Major problems pending final clarification are said to be profitability and drafting of agreements to mutual satisfaction. The coming talks in Tokyo, therefore, are expected to culminate in conclusion of a final agreement before the end of November or early December.

The proposed engine is scheduled to power such new aircraft as the Y-XX, a short-to-medium haul twinjet airliner Japan plans to develop as a national project. The development cost of the Anglo-Japanese engine, estimated at ¥140,000 million, will be shared equally by the Japanese manufacturers and Rolls-Royce. The Ministry of International Trade & Industry (MITI) has decided to cover seventy-five percent of the Japanese side's cost in the form of annual subsidies.

CSO: 4120

ECONOMIC

LONGER LEAD TIME REQUIRED FOR PROCESSED MATERIAL

Tokyo JPE AVIATION REPORT-WEEKLY in English 21 Nov 79 pp 4-5

[Text]

The aerospace industry is confronted with difficulties in obtaining processed material through import despite orders on hand to produce aircraft and space equipment. In addition to longer lead time required, prices are going up.

In the case of forged aluminum and titanium alloy material from the US, the lead time has become twice as long and the price has doubled in the past ten months. The main reason is attributed to demand exceeding supply capacity of the US manufacturers. The industry is apprehensive that similar trends may develop among domestic suppliers.

Indications of the current difficulties were first seen in the summer of 1978 when Japanese aircraft manufacturers were asked by US material suppliers to place orders as early as possible. Delay in delivery and price increases began earlier this year. While the lead time for sheet and forged material of aluminum and titanium alloys was seven to twelve months one year ago, Japanese aircraft manufacturers are now required to place orders for deliveries thirty to thirty-six months in advance.

Prices have almost doubled since the end of last year, affected by inflation in the US, depreciation of the yen, as well as growing material shortages.

Manufacturers of aircraft instruments are no exception from the current difficulties. A leading firm says that a lead time of six months is now fourteen or fifteen months for processed material ordered overseas.

IHI, the largest manufacturer of aero engines in Japan, is also suffering from delivery delays and price increases for processed material through import.

Since US material suppliers give priority to US aircraft manufacturers, the current difficulties confronting the Japanese aerospace industry can not be overcome easily. The industry will be forced, therefore, to revise overall production schedules based on longer lead times and higher prices.

CSO: 4120

ECONOMIC

SJAC TO INAUGURATE AD-HOC COMMITTEES

Tokyo JPE AVIATION REPORT-WEEKLY in English 21 Nov 79 p 5

[Text]

To study flyingboat and small aircraft development projects, the SJAC (Society of Japanese Aerospace Companies) has organized two ad-hoc committees. The first meetings of these took place November 12 and 13. The committees were set up in response to the interim report of the Policy Subcommittee, Aircraft Div., Aircraft and Machinery Industry Council, an advisory body to MITI.

Chaired by Prof. Hiroshi Nakaguchi of Chiba University, the Flyingboat Committee comprises twenty members and observers. It will study not only configurations of future flyingboats but also overall systems and related problems involving flyingboats, seaports, control and safety aspects, and envisaged traffic demand.

The small aircraft committee has sixteen members and four observers. It will study future demand for small aircraft in Japan and airport and support systems requirements and other problems for promotion of general aviation.

Both committees will complete their respective studies by the end of March 1980.

CSO: 4120

ECONOMIC

NO SHORTAGE OF FUEL OIL SUPPLIES FORESEEN FOR WINTER

Tokyo KYODO in English no time given 21 Nov 79

[Text] Tokyo 21 Nov KYODO--The Japanese people can pass this winter without suffering any shortage of fuel oil supplies to keep their homes and working places warm. The Ministry of International Trade and Industry (MITI) said in its monthly report released Wednesday on the oil supply situation in Japan during October. According to the statistical report, Japan's imports of crude and semi-crude oil during October picked up 12.7 percent from the year-ago level to total 24,929,200 kiloliters. The total crude and semi-crude oil inventories in the hands of oil refining companies in the country, as of end-October, also increased 5 percent from the year-ago mark to total 32,508,800 kls., not counting the industrial and governmental emergency crude oil stockpiles.

Consumption of oil products in Japan, as represented by sales, generally were slow to increase, with kerosene gaining only 0.5 percent from the year-ago level, heavy fuel oil class A (for fueling boilers) 1 percent, gasoline 3.1 percent, and gas oil (diesel engine fuel) by an exceptionally wide margin of 8 percent. This was chiefly because consumption of kerosene and heavy fuel oil class A for heating purposes did not grow much because the late autumn weather has been generally warm throughout Japan.

Significantly, kerosene inventories as of end October hit a new record high of 7.1 million kls., topping the last all-time peak of 6.77 million attained a year before. The new record inventory, including 6,823,000 in refiners' stocks, up 7.3 percent from a year ago, was as much as 10 percent in excess of what MITI had officially estimated under its national oil demand and supply program.

The abundant supplies resulted from stepped-up crude and semi-crude oil imports by Japanese refiners and traders through direct-deal and spot market purchases to make up for the tapering-off of long-term supplies by Western international oil corporations. Oil product inventories increased due to the usual prewinter production buildup as well as the slow sales growth. By producing nation, the October imports increased 90.4 percent from Qatar, 83.8 percent from Iraq, 26 percent from Saudi Arabia, 25 percent from Kuwait and 13.2 percent from Indonesia, all against the year-ago levels. Those from Iran dipped 7.6 percent, though gaining 58.7 percent from the preceding month.

OIL TRANSFORMS GULF RELATIONS WITH JAPAN

Abu Dhabi EMIRATE NEWS in English 25 Nov 79 p 4

[Article by Saif al-Din al-Wady Romaki, of UAE Embassy, Tokyo]

[Text]

Personally speaking, I may say my interest in Japan could be traced to my early schooling days when my teacher asked the class in 1947 to memorise Hafer's poem. At that time Arabs were facing the tragedy of Palestine. The teacher, as such, presented the Japanese individual with a halo of skill, diligence and heroism.

After the War energy emerged as the main commodity that Japan wanted most from this region. However, the turning point in the Gulf-Japanese relations was energy price hikes and the oil shock of 1973 touched upon the economic relations between Japan and the Gulf area, with emphasis drawn on the period that followed the Second World War. The might of energy and its role in the political arena in an era of interdependency has been given a special scrutiny, for energy's role in economics and international politics, as reiterated by Dr. Oteiba, the UAE Minister of Petroleum/Chairman of OPEC, who said "...in the language of energy, politics and economics are two sides of one coin", therefore cannot be separated.

Perhaps no question has attracted the attention of world opinion in the last ten years more than energy and oil. Oil has been the main topic on the agenda of the seven industrial nations in their summit conference in Tokyo in June 1979. Newspapers all over the

world were blanketed with headlines related to oil and energy affairs.

It has just been reported that when the International oil industrialists ended their 10th conference of the World Petroleum Congress in Bucharest (Rumania) on 14 September 1979, they warned that "Oil is Politics". In this conference, there were 4500 oil experts represented 70 nations. Mario Alvarez Garcillan, President of the Spanish delegation, urged the Congress to "go political" during the proposed London Conference of 1983. While Garcillan was stating that "Oil is Politics", he was contending that the oil industry needs to increase its political influence with governments.

In fact, energy, therefore, has become the cutting edge of a broad transition in international politics. The transition was brought on by the successful culmination of the main historical trends of the first quarter century after World War Two that was characterised by (1) the growth of the affluent consumer societies in the Western industrial countries and in Japan, (2) the growth in military power and industrialisation of the communist countries, (3) the rise of nationalism and recognition of the political value of natural resources in the less developed countries; and (4) the emergence of deep concern about

production and use.

To analyse the Japanese vulnerability towards oil in her relations with the Gulf States, some analysts hold the view that Japan, in its foreign policy, tries to make a virtue out of being economically vulnerable. As a result, it tends not to take initiative but rather to respond to events. However, what it lacks in anticipation it makes up for in swiftness of reaction.

Since the 1960's there had been a Japanese reliance on the Gulf States for its oil resources. Nevertheless the 1973 Arab-Israeli war caused a shock even more dramatic than President Nixon going to Peking with only one day's notice to Tokyo early in 1972. The energy crisis of October 1973 exposed the strengths and weaknesses of Japan's foreign policy strategy. In the first half of the decade this caused many to question the tactics which were reflected in the swiftness with which a pro-Arab line was produced and to ask whether such behaviour might not in the future weaken Japan's negotiating position. Others wondered how much longer could Japan afford to practice a foreign policy whose political content was dominated by the ability to react, rather than by the virtue of consistency.

The reasons for Japan's near-panic reaction to the cutting off of oil supplies were self evident. Japan is more dependent than any other major

western industrialised nation on external sources for its energy and in particular on the Gulf region for its oil supplies. Official statistics outline this vulnerability broadly as follows: 85.5% of Japan's total energy requirement is imported. Out of this, oil makes up 78% of this figure. Domestic oil production averaged 945,300 kilolitres per annum between 1965 and 1974, compared with demand in 1973 for 285,600,000 kilolitres. This, therefore, made Japan's dependence on foreign oil at a rate of 99.7%, of which roughly four fifths comes from the Gulf region. In such circumstances the shift in Japan's stance on the Middle East conflict became almost inevitable.

Japanese diplomats nevertheless looked for some strands of consistency in their position, citing Japan's support for the resolution 242 of November 1967, Japan's adherence to the principles of this resolution (and of 338) and to the recognition of the rights of the Palestinians within the context of these resolutions, have always been basic to public official pronouncements on the Middle East.

On 22 November 1973, after negotiations with Arab governments, the Cabinet issued a statement in which it mentioned that "the Government of Japan will continue to observe the situation in the Middle East with grave concern and, depending on future developments, may have to reconsider its policy towards Israel". Although a very positive statement, no substantial developments have occurred to prevent its full implications.

Thereupon such a stand was not considered enough in the eyes of the Japanese industry and it was therefore necessary for Mr. Takeo Miki, the then Deputy Prime Minister, to tour some of the Arab states in December 1973 in order to secure the oil flow. Since then, the head of the Department of the Political Affairs at the Palestine Liberation Organisation, the PLO, Fatah Qaddoumi, visited Tokyo in 1976 and was authorised to open a non-governmental office for the PLO. Politically, Japan hoped that his gesture will prove adequate.

Japan's strategy remained aiming at ensuring a steady and stable supply of crude oil. Some of its Middle East policy begins at home with efforts to curb domestic consumption. But in general Japan always hopes to establish a relationship with the oil producers strong enough to survive the strains even if war between the Arabs and Israel may occur. As such, Japan has tried to set up insurances and commitments to lessen its vulnerability.

Although the United States invited Japan to join the International Energy Agency (IEA), set up in November 1974, to conduct international oil-sharing arrangements, and its current oil stockpile amounts to about 90 days, Japan looks sceptical about the IEA's ability to meet any future crisis. As a result Japan is willing to strengthen her bilateral relations as a back-up. Besides the oil obtained through her partly-owned companies operating in Abu Dhabi, in the Neutral Zone between Kuwait and Saudi Arabia and in Iran, Japan tried to diversify her oil supplies from other countries such as Venezuela, Mexico and Indonesia.

With the political incidents in Iran Japanese industrial houses and officials are becoming convinced that oil imports from the Gulf Arab States will remain fundamental to Japan's economic prosperity for the foreseeable future. According to the Petroleum Association of Japan, oil imports in 1975 totalled 262,645,000 kilolitres, out of which 78.19% came from the Gulf region. The Ministry of International Trade and Industry (MITI) has calculated that needed oil imports in the 1980 fiscal year will total 393 million kilolitres and in 1985 485 million.

Besides oil, trade has provided a key link and Japan has been comparatively successful in reducing the size of its oil deficit. The Gulf region has taken an increasingly large proportion of Japan's global trade. Although, following the oil crisis, Japan's global exports rose only negligibly exports to the Gulf region rose by 62%. The main takers were Iran with 28.2%, Saudi Arabia 20.6%, Iraq 12.5% and they

UAE, Qatar, Bahrain and Oman 10.2%. Heavy and chemical industrial goods formed 78.4% of exports while light industrial items another 19.4%. Japan has been expanding its share of the overall Gulf area market rapidly and to insure against fluctuations in trade by pressing for 'large plant' contracts on the assumption that they will require servicing, advice and spare parts for many years. Mitsubishi's operations are typical Japanese firms have been concentrating on such countries as Abu Dhabi, Iraq, Kuwait, Qatar, and Saudi Arabia, where they have won contracts to build cement, steel, gas, fertiliser, petrochemical, thermal and desalination plants.

Japan has in its commercial favour economic expertise and competence. It is not hampered by the emotional burden of a colonial past to live down, though it lacks detailed experience in the Gulf and the Middle East and thus, Japanese, aside from the Arabists, tend to find Arab culture alien. The powerful employers' association, powerful employers' association, Keidanren, and the major arms producer, Mitsubishi, have deplored the fact that Japan does not have the export of arms as a means of leverage in its relations with the area, however, in general terms, Japan shares the need to build with the Gulf region an on-going relationship of mutual dependence.

In broad terms, Japan's policies appear to have been successful, but they have yet to be seriously tested. Subject to the vagaries of developments in Lebanon and Iran MITI has calculated that under these circumstances Japan could again find itself the most vulnerable link in the western oil-consuming chain. To confirm this hypothesis, just last week with the new development in Iran following the students' occupation of the American Embassy and the mutual decision to stop oil to the U.S., the Japanese Government, according to the Japan Times (14 November 1979) said that the Japanese oil supply situation would seriously worsen if the present U.S. Iranian tension would continue for any length of time.

Because Japan is unable to take on

direct political responsibilities, its general policies towards the Middle East will continue to be reactive. And it remains, therefore, questionable whether its activities in commercial fields away from political involvement and responsibility will provide adequate insurance against the risks of economic disaster that an Arab-Israeli crisis always threatens to bring. However, it appears that a new trend has been taken with this regard. For instance, the same paper mentioned that the Japanese Government decided that... "despite the U.S. Government's decision to stop oil from Iran, Japan would not act jointly with the U.S. against the Islamic state on which this country (Japan) depends heavily for its crude supplies."

One can safely observe the strength of the growing mutual interdependency since World War Two. The tremendous increase in Japanese oil consumption and the large subsequent purchases of petroleum from the Gulf States by far have been the major factors responsible for this area's growing importance to Japan. And whereas since it is the biggest object for a Japanese to seek a way of ensuring stable oil supplies for Japan's advanced industry, it may be said that both Arab and Japanese interests are to work for the promotion of their mutual "resources diplomacy" in transferring Japanese economy, technology and its know-how for Arab oil and petro-dollars, and for the promotion of cultural exchanges.

The nationalistic Arab and/or Gulf governments do not look upon Japan, moreover, as a power seeking to advance her political interests through trade, nor as a former colonialist nation of its loves. They are inclined rather to regard Japan as an equal and they have also come to have a very high regard for her technological and industrial achievements. The Arab positive psychological attitude toward

Japan thus can inevitably bring greater increases in technical and economic cooperation between the two regions if the Japanese should strive to increase their ties with this area far beyond what they are today, particularly if the present Japanese trends continue to grow in understanding the Arabs' political strife.

Before I conclude, please allow me to quote Professor Shinji Maejima, who stated in his article "Middle Eastern Culture: A Heritage for Japanese," that "the debt the Japanese people owe to the civilisation of the Middle East is very old, dating back many centuries". He pointed out that the Japanese still only know a tiny fraction of what actually happened in both ancient and recent history of cultural interchange between the Arabs and Japan. It is a sad reality, indeed, that the same conclusion of Professor Maejima also applies on the Arab side with regard to Japan. It might, therefore, be said that both oil-exporting (particularly the Arabs) and oil-consuming peoples (especially the Japanese) must work together to create the good atmosphere of the basic condition for expanding mutual cooperation in oil business and economics, energy and political affairs, and in cultural fields.

According to the Japan Times (18 October 1979), upon his meeting with Japanese officials during his visit to Japan, Dr. Oteiba, UAE Oil Minister and OPEC Chairman, agreed in principle to set up a formula for a dialogue between Japan and the oil-producing Gulf States. With such mutual interdependence and such constructive dialogue, I'll predict that the era in which a Japanese image of the Arab is that of the desert camel, oil rig and the Harem of 1001 nights, and also the Arab image of the Japanese as that of cheap transistors, Mount Fuji and the Gisha girls will come to an end.

ECONOMIC

DEFENSE BUDGET MAY BE CUT BELOW 0.9 PERCENT OF GNP

Tokyo KYODO in English no time given 30 Nov 79

[Text] A high Foreign Ministry official expressed the fear Friday that if Japan's national defense spending was trimmed below 0.9 percent of the gross national product, it might raise serious problems in maintaining the existing mutual security system with the U.S. He gave this view in reference to a possibility that defense spending for next fiscal year, starting in April, might be brought down to below the present level of 0.9 percent of the GNP.

The Finance Ministry, now drafting a 1980 fiscal budget, said Friday tight state finances would make it impossible to keep defense expenses for fiscal 1980 at the previous year's level. The official suggested the need for more defense spending and pointed to the U.S. congressional clamor against Japan's "free-ride" under the bilateral security treaty. Next year is the presidential election year, he noted.

Reduction in defense spending by Japan could invite criticism from the U.S. and its allies in Western Europe, he said.

Former Foreign Minister Sunao Sonoda at a meeting last September of the defense policy making council made an oblique request that the present ratio of defense spending to the GNP should not be cut back. The Foreign Ministry official said there was opposition within the ministry to further defense spending cuts. One reason for this opposition is the Soviet military buildup on some of Japan's northern islands occupied by the Soviet Union.

Japan's defense spending stood at 0.88 percent of GNP in the 1977 fiscal budget and has remained at the 0.9 percent level since fiscal 1978.

ECONOMIC

NEWS AGENCY PREDICTS 1980 GROWTH RATE OF 4.5-5 PERCENT

OW021455 Tokyo KYODO in English 0807 GMT 2 Dec 79 OW

[Article by a KYODO news analyst]

[Text] Tokyo, 2 Dec, KYODO--At the Economic Planning Agency, where economists are working on the Japanese Government's forecast for fiscal 1980, opinion is gathering around a growth rate next year of 4.5 or 5 percent. In Japanese practice, prediction is also policy, and when the EPA's forecast is formally approved by the Cabinet, the projected growth rate becomes also an official policy objective.

The 4.5 or 5 percent figure would be less than the 6 percent or so in prospect for fiscal 1979, ending next March.

The expected slowdown in growth will come on the uncertainties over oil supply and price. The deflationary effect of inflation in reducing real purchasing power and the holddown on fiscal spending, particularly on public works, dictated by the need to get down the enormous budget deficit.

On the other hand, the EPA's growth rate figure would be higher than the 2 to 4 percent being predicted by most private sector forecasters. A rate lower than 4 percent would result in increasing unemployment and related social problems, a situation the government naturally wants to avoid. Next year, however, the economy will lack the stimulus of large-scale spending on public works.

The Finance Ministry, rushing to get the new budget into final shape by year end, plans to keep the public works appropriation at a zero increase. Allowing for inflation, this would mean an actual decrease. Further, the outlook now is that consumer expenditure and capital spending next year will show smaller rates of growth.

In short, if the growth target of 4.5 or 5 percent is to be attained, exports must be increased and this could revive troubles in trade with the United States and the European community, a situation which the government would be loathe to face after the serious situation in this problem it had to face in 1977-78.

Another consideration here is that Japan must increase its exports if it is to bring the growing deficit in its payment balance.

For the first seven months of fiscal 1979, April through October, the deficit on current account was dollar 5,448 million. Reducing the deficit would also firm up the yen's exchange rate and help curb inflation as well.

The awkward fact is that Japan needs its surpluses in trade with the U.S., the EC and the non-oil developing countries to cover its deficit with the oil-producing countries, and its oil import bill this year will be up dollars 12 billion. Events, however, are running ahead of policy decisions.

Exports of industrial plant equipment, cars, copiers, steel, videotape recorders, television sets and similar Japanese specialties are rising sharply, in large part because of the cheaper yen. The Japan Machinery Exporters Association reports that export orders for plant equipment (orders of dollar 500,000 each or more for capital goods) in the first (April-Oct.) half of this fiscal year came to dollars 5,448 million. Orders for power equipment were up 51.7 percent over the same period last year and for liquefied gas facilities by 2.75 times. The association sees continued heavy orders from the Middle East and African nations and a total of well over dollar 10 billion for the full fiscal year.

Japanese-made cars, with their high fuel economy, are selling more strongly than ever in the U.S. Videotape recorders, a virtual Japanese monopoly, are finding new markets in Europe, and China has become a new market for television sets.

New markets are also being developed in the Middle East, and on the whole Japanese manufacturers are still observing a measure of self-restraint on exports to the U.S.

In any event, exports are on the rise and the payments deficit looks to shrink by next spring. Selective official administrative action on particular sensitive items and sensitive overseas markets could minimize future troubles in trade without seriously checking the overall rise. An immediate problem, however, facing the government is what to do about yen 1 trillion in public works funds now being held back. By carrying over these funds into the next fiscal year instead of releasing them in the final Jan.-March quarter of fiscal 1979, the growth rate for the current fiscal year would likely be a bit short of 6 percent--the official target is 6.3 percent--but this would help to sustain the economy in fiscal 1980 and bring down the budget deficit.

Although the inclination within the government now is in favor of carrying over the money, there is strong pressure from local business and political interests, including the construction trade, for release.

As to trade and payments policy, the EPA at present feels that events should be allowed to take their natural course and aside from selective restraints, the export rise be permitted to continue. There would be discreet official encouragement of the development of new overseas markets and of industrial plant exports as the ways of creating the least amount of trouble in trade.

In the growth rate of GNP in fiscal 1979, net external trade--receipts from commodity and invisible trade minus payments--will be a minus factor. In fiscal 1980, the EPA counts on external trade as a positive factor which could account for as much as half of the growth rate.

CSO: 4120

ECONOMIC

STUDY GROUP ISSUES ECONOMIC PROPOSALS

OWO30423 Tokyo KYODO in English 0403 GMT 3 Dec 79 OW

[Text] Tokyo Dec 3 KYODO--A group of leading public figures has called on the government to further open the Japanese market. The proposal was incorporated in a package released by the study group for new social-economic institutions, formed by scholars, researchers, labor unionists and journalists.

In the 1980s, the Japanese economy will face two important issues-- contribution to stabilization of the world economy and achievement of stable economic growth, according to the package.

In concrete terms, the Japanese economy should work out various economic and social mechanisms suitable to the new era, create job opportunities for middle-aged and older workers in the aging society and maintain stable economic growth under demand led by the private sector, the package said.

The package stressed, among other things, the need to open up the Japanese economy further in line with the principle of reciprocity to meet international expectations for this country. At the same time, Japan should increase economic assistance to oil-nonproducing developing countries and also improve working conditions to remove one of the factors for the present unequal trade balance between Japan and other industrial countries, it said.

A thorough review of expenditures and administrative reforms are inevitable to reconstruct the deficit-ridden national finances. A tax increase is an easygoing way of thinking, the package said.

To create job opportunities, the package called for legislation to extend the working age limit to 60, establishment of a five-day workweek and a reduction in working hours.

CSH: 4120

ECONOMIC

REPORTAGE ON ECONOMIC PREDICTIONS FOR 1980

Bank Calls for Export Restraint

OW050447 Tokyo KYODO in English 0256 GMT 5 Dec 79 OW

[Text] Osaka 5 Dec KYODO--Sumitomo Bank predicted Wednesday that Japan's exports will increase in the next fiscal year starting in April due to the depreciation of the yen and called for restraint in export volume but an increase in export prices. In a report on the prospects of Japan's balance of payment position in fiscal 1980, the bank said that it is necessary to explore commodities and markets which will not compete with those of Japan's trading partners. The report also called for measures to cope with the depreciation of the yen and more imports of manufactured products.

The bank forecast that the organization of petroleum exporting countries (OPEC) will raise crude prices by 30 percent at its meeting in Caracas in mid-December. Japan's crude imports will level off and the real economic growth rate will range between 3 and 4 percent with world trade increasing 2 percent, it said.

The yen's rate will be some yen 240 against the U.S. dollar in the first half of fiscal 1980 but will rise in value gradually in the latter half of the year, it said. Due to the depreciation of the yen and slowdown in domestic economy, Japanese firms will become export-minded with Japan's exports increasing, the report said, adding that at the same time, Japan's imports will also increase due to skyrocketing price of crude oil. As a result, the current account deficit will be dollar 8.5 billion, a sizable red-ink figure compared with the dollar 13.2 billion expected in the current fiscal year ending in March. But the trade surplus will be dollar 1 billion.

Areawise, Japan will suffer a trade deficit with OPEC totaling dollar 40 billion [as received, presumably billion] while it will record a dollar 28 billion trade surplus with non-OPEC nations, the report said.

Under the circumstances, there is possibility of trade friction and, therefore, it is necessary to promote exports in a manner which will not cause frictions with other countries, correct the undervalued yen situation and hold down increase in prices, the report added.

Export-Import Growth Forecast

OW060409 Tokyo KYODO in English 0349 GMT 6 Dec 79 OW

[Text] Tokyo 6 Dec KYODO--The custom-cleared trade deficit is expected to shrink to dollar 7 billion in fiscal 1980 from dollar 11 billion in fiscal 1979 because of an increase in exports and slow growth in imports, the Japan Foreign Trade Council reported. Forecasting trade through fiscal 1980, the council said that Japan will recover its international competitiveness on account of the yen's depreciation.

Exports were estimated to gain 8.1 percent to dollar 107 billion in fiscal 1979 over the previous year and by 15 percent to dollar 123 billion in fiscal 1980, it said.

Imports of primary products, with crude oil in the vanguard, will continue to increase, but in fiscal 1980 the domestic economy will become stagnant, resulting in only slight increase in imports, the council said. Imports are expected to rise by 39.4 percent to dollar 118 billion in fiscal 1979 over the previous year and by 10.2 percent to dollar 130 billion in fiscal 1980.

These assumptions were based on the premise that real gross national product will increase 4-5 percent in fiscal 1979 and the value of the yen against the dollar was yen 213.00 in the first half of fiscal 1979, yen 230.00 in the latter half of the year and yen 230 on the average in fiscal 1980.

The increase in plant exports was estimated at 7.8 percent in fiscal 1979 and 19.6 percent in fiscal 1980. In the import sector, crude was expected to rise 56.1 percent in fiscal 1979 due to price markup by the organization of petroleum exporting countries, while the growth ratio will slow down to 18.5 percent in fiscal 1980 in anticipation of a drop in import volume.

The council said that the world economy is inclined to stay calm because of anti-inflationary measures taken by industrialized nations and the growth of world economy is expected to be stagnant in the years ahead.

Under the circumstances, the export climate for Japan is expected to be severer since industrialized nations and nonoil developing nations will again move to take protectionist policies, the council added.

CSO: 4120

ECONOMIC

BRIEFS

LOAN TO BURMA--Tokyo Nov 20--Japan will extend a yen loan of yen 26,960 million to Burma, the Foreign Ministry announced Tuesday. Of the sum, yen 12,730 million are earmarked for three projects for expansion of rice-polishing factories, cement mills and telecommunication works and yen 14,230 million is set as commodity loans. The loan is to be repayable in 30 years, includes a 10-year grace period and carries 2.25 percent interest rate per annum. The loan brought Japan's total loans extended to Burma to yen 138,485 million. [OW231255 Tokyo KYODO in English 0930 GMT 20 Nov 79 OW]

AID TO THAILAND--Tokyo Nov 20--Japan will extend grant aid totaling yen 2.8 billion to Thailand to assist in the country's agricultural and fishery projects, the Foreign Ministry said Tuesday. Notes on the aid were exchanged in Bangkok Monday by Japanese Ambassador Hiroshi Hitomi and Xujati Pramoolpol, director general of the Department of Technical and Economic Cooperation in the prime minister's office. Under the arrangements, yen 2 billion will be set aside to supply fertilizer for increased rice production, Foreign Ministry officials said. They said the remaining yen 800 million would be used to furnish the administrative and research buildings, a dormitory for trainees, and fish breeding and hatching facilities at a coastal aquaculture center at Songkhla. [OW231255 Tokyo KYODO in English 0204 GMT 20 Nov 79 OW]

IRAQ MACHINERY CONTRACT--Osaka Nov 20--Kawasaki Heavy Industries, Ltd., announced Tuesday that it has been awarded a contract to supply a yen 2.5 billion steel fabricating plant by the Iraq State Constructional Contracting Company. The plant, designed to fabricate steel plate, h-shaped and l-shaped steel into steel frames and other structures, will be built in the suburbs of Baghdad. The plant is expected to be completed within 30 months after the conclusion of the contract. [Tokyo KYODO in English 0900 GMT 20 Nov 79 OW]

AID TO EGYPT--Tokyo Nov 20--Japan will extend a grant in aid of up to yen 30 million to Egypt for language study at Cairo University, the Foreign Ministry announced Tuesday. Notes on the Japanese assistance were exchanged

in Cairo Monday by Ambassador Mizuo Kuroda and university president Dr Ibrahim Badran. Cairo University has the only Japanese language and culture course in the Middle East. It will use the grant to buy audiovisual equipment and other materials. Japan has sent four Japanese lecturers to Cairo University through the Japan foundation. [Tokyo KYODO in English 0436 GMT 20 Nov 79 OW]

SCIENCE, TECHNOLOGY EXHIBITION--Tokyo, Nov 27--The government decided at a regular cabinet meeting Tuesday to hold an international exhibition of science and technology at Tsukuba, an academic city in Ibaraki Prefecture, northeast of Tokyo, in 1981. The government will apply for candidacy to the International Exposition Secretariat in Paris shortly. [Text] [Tokyo KYODO in English 0245 BMT 27 Nov 79 OW]

LOAN TO MAURITANIA--Tokyo, Nov 22--Japan will extend a yen loan totaling yen 3.6 billion to Mauritania for new iron mine development in that country, the Foreign Ministry announced Thursday. Notes on the loan were exchanged in Dakar Wednesday by ambassador to Mauritania Sondo Uchida who is concurrently ambassador to Senegal, and Taki Ould Sidi, Senegal ambassador to Mauritania. The loan, first to be extended to Mauritania by Japan, is repayable in 25 years including a 7-year grace period with an annual interest rate of 4 percent. The Japanese loan will be used to procure some of the wagons for transporting iron ore and to improve the loading port facilities. With joint financing by the World Bank, the Saudi Arabia fund and Kuwait fund, new iron mines are to be exploited in the Kedia District in the northern part of Mauritania. [Tokyo KYODO in English 0326 GMT 22 Nov 79 OW]

STEEL AGREEMENT--Osaka Nov 21--Kawasaki Steel Corp. announced Wednesday the conclusion of an agreement with Sweden's largest steelmaker, Svenskt Stal, to provide advanced technology for operating the basic oxygen furnace, a steelmaking facility. Under the agreement, "Kawasaki licensed the Swedish mill to use its technical knowledge and experience embodied in a computerized system that provides dynamic control of the steel refining process in the basic oxygen furnace," the firm said. The Swedish mill intends to adopt the technology at its two 105-ton capacity basic oxygen furnaces at the Lulea works by the latter half of 1980 to boost their productivity. [OW220537 Tokyo KYODO in English 0750 GMT 21 Nov 79 OW]

AID TO KENYA--Tokyo, Nov 24--Japan will extend up to yen 300 million in grant aid to Kenya to assist in increasing the country's food production, the Foreign Ministry announced Saturday. Notes on the aid were exchanged in Nairobi Friday by Japanese Ambassador Senkuro Saiki and N. Nganga, permanent secretary of the Office of Vice President and the Ministry of Finance. Foreign Ministry officials said the aid would be used to furnish fertilizer necessary under Kenya's comprehensive agricultural development plan. [Text] [OW252107 Tokyo KYODO in English 0451 GMT 24 Nov 79 OW]

AID TO NEPAL--Tokyo, Nov 24--The government has offered to Nepal two aid grants worth up to yen 1.5 billion of fertilizer and equipment for irrigation facilities, and up to yen 650 million for construction materials, the Foreign Ministry announced Saturday. Notes on the aid were exchanged in Katmandu, Nepal, Thursday by Japanese Ambassador Minao Tsuchiya and Dr Devendra Raj Panday, secretary of the Nepalese Finance Ministry. The economic assistance was offered to help the Nepalese Government increase food production, the announcement said. The aid in construction materials is aimed at helping improve and expand the road network in Nepal, it said. [Text] [OW252107 Tokyo KYODO in English 0508 GMT 24 Nov 79 OW]

AID TO GHANA--Fukushima, Nov 22--The opening ceremony for the recently completed Noguchi Memorial Research Institute in Accra will be held Saturday, it was learned here Thursday. The institute, formally called the Institute for Basic Medicine attached to the Ghana University, a two-story building occupying a total space of about 6000 square meters, was constructed on the Ghana University campus at a cost of yen 2 billion in commemoration of the 100th anniversary of the birth of Dr Hileyo Noguchi. It was built by the executive committee for the memorial project with funds provided gratis by the International Cooperation Agency of Tokyo. Dr Noguchi (1876-1928), a physician and bacteriologist known for his study of yellow fever and who succumbed to the disease in Accra, was a native of Fukushima Prefecture. The Fukushima Medical College plans to send a team of doctors to the institute to help organize medical research. The college has been offering technical guidance to students of the medical department of the Ghana University for 11 years and seven doctors from the college are now working at the Ghana University. [OW220555 Tokyo KYODO in English 0305 GMT 22 Nov 79 OW]

WAGE RESTRAINT--Tokyo 5 Dec KYODO--The Japan Federation of Employers' Association (Nikkeiren) Wednesday warned against raising wages to cope with the rise in prices. The warning was contained in a report drawn up by Nikkeiren's committee for study of labor problems, to establish guidelines to be followed by the employers in meeting the labor's annual wage increase demand next spring. In the report, Nikkeiren said that the rise in consumer prices, which has been caused by the soaring crude oil prices or other overseas factors, should be met with the reduction in the standard of living, and not by raising wages. It said that the year 1980 will see a decline in the real growth rate and a rise in consumer prices under the impact of the already-rising wholesale prices. Nikkeiren emphasized that wage hikes to meet such a price situation will lead to an increase in the production cost and a violent rise in prices in general, only to impose hardships upon the people's livelihood. It expressed hope that the employers and labor unions will talk together more earnestly than before under these difficult economic conditions. The report reiterated Nikkeiren's position that introduction of five-day-a-week work through legislative steps is out of the question. And whether to fix the age limit for their employees at 60 years should also be decided by private enterprises. [Text] [OW051145 Tokyo KYODO in English 1129 GMT 5 Dec 79 OW]

NO DEFENSE BUILDUP--Tokyo, 21 Nov. KYODO--Prime Minister Masayoshi Ohira said Wednesday that because of the current economic situation he cannot meet the U.S. demand that Japan modernize and increase its defense power. In an interview with James Reston of the New York TIMES Ohira said Japan's national defense faced the problem of growing personnel expense and the need to update the facilities and equipment. Larger personnel expenses should not mean a strengthened defense capability and the present poor financial health does not allow modernization of the self-defense forces, Ohira said during a 50-minute interview. Asked about "the weakening U.S. leadership" in the world, Ohira said, "some people say the United States is no longer a strong country it used to be but I think it still can do a lot for us. U.S. allies should consider what they can do for and with the United States," Ohira added. He also said an increased Soviet military presence in East Asia is a major concern and Japan will promote diplomacy designed to lessen tension in the area. [Text] [Tokyo KYODO in English no time given 21 Nov 79]

CHINESE SPACE FACILITIES INSPECTED--A group of seventeen Japanese engineers, scientists and government officials related to the space industry are visiting China for thirteen days from late October, to inspect for the first time space-related facilities. The group was invited by the Chinese Academy of Space and Aeronautic Sciences in return for an invitation to two Chinese groups to Japan by the Sino-Japanese Society for Exchange of Science and Technology in 1978 and 1979. The group will visit a major satellite launching site in China as well as facilities and laboratories related to the Chinese space development programs. The group will be headed by Dr. Osamu Nagano, a pioneer of the Japanese jet engine industry, who is currently a standing member of the Space Development Promotion Committee of Keidanren (Federation of Economic Organizations of Japan). [Text] [Tokyo JPE AVIATION REPORT-WEEKLY in English 31 Oct 79 p 4]

NIKE REPLACEMENT RESEARCH--In accordance with Air Self-Defense Force (ASDF) plans to replace the Nike-J, MHI has started a company project for research on a new surface-to-air long-range missile system. The basic concept of the MHI for the SAM-X, the Nike-J replacement, calls for maximum utilization of the Nike-J system for an improved SAM along with modernization of present ground support facilities. The envisaged performance of Mitsubishi's SAM is said to be comparable to that of the US Army SAM-D Patriot in which both the ASDF and the CSDF are showing interest as a possible common successor to Nike and Hawk SAMs. Features of the MHI's SAM-X include an automatic ECM (electronic counter-measure) capability through a digital computer unit installed in the missile. According to sources, MHI expects to cooperate with McDonnell Douglas in testing prototype missiles in the US as well as system integration and evaluation.

Y-8 CONTRACTS AWARDED--The Civil Transport Development Corporation (CTDC) last week awarded orders worth 9,363 million yen to MHI, KHI, and FHI for design, manufacture of jigs and tools, manufacture of two test airframes and five prototypes for the Y-8 (Boeing 767) joint development and production program. Work under the orders will continue to 1987. The first Y-8 development contracts worth 8,129 million yen were awarded by the CTDC to the three manufacturers in late August this year. [Text] [Tokyo JPE AVIATION REPORT-WEEKLY in English 7 Nov 79 p 3]

NEW BATTERY GRID MANUFACTURING PROCESS DEVELOPED

Tokyo CHIKUDENCHI in Japanese 1 Oct 79 p 1

[Text] On 18 September, the Japan Storage Battery Co [JSBC] announced that it had developed a "high-speed rotary expander process" with extremely high productivity for manufacturing automobile battery plate grids.

Regarding new processes in plate grid manufacture, earlier, the Furukawa Battery Co in joint research with the Furukawa Electrical Industry Co succeeded in technically developing the punching method. In the entire battery manufacturing process, rationalization is lagging most of all in this area and new technologies being developed one after the other throughout the world will bear watching.

JSBC has developed the new production process (the high-speed rotary expander process) which in manufacturing automobile battery plate grids has 20 times the productivity of the casting method used heretofore and will provide greater performance and lighter weight for its storage batteries. Along with switching over to this new process for part of the production line to making maintenance-free automobile batteries, JSBC plans to adopt this new process at its Gumma plant (construction to begin within the year) which is scheduled to operate next summer.

It is said that the automobile battery has technically been perfected, but reducing the weight and promoting the maintenance-free battery are still regarded as important technological innovation topics and because cost reduction is just about the biggest problem, the process of manufacturing plates which constitutes the heart of the storage battery has become the focal point in the development battle waged among the various companies.

Heretofore, plate grids of lead storage batteries were made by casting (the method in which molten lead alloy is poured into plate molds one at a time), but in recent years with the conversion to maintenance-free automobile batteries, along with the shift to antimony-free plate grids (plate grids manufactured without using antimony which is the cause of the liquid (boil) phenomenon and self-discharging of the storage battery electrolyte), mechanical working methods such as the "expander process" and "punching process," have

been developed as improved methods better than the low-productivity casting method for lead-calcium alloy plates. Of these, the "expander process" was first put to practical use by General Motors of the United States and today it possesses patents in various countries of the world, including Japan. An outstanding feature of the "expander process" is the very small amount of lead scrap discharged during manufacturing and today it is the only process utilized in the mass production of grids through mechanical processing.

With the "expander process" which is already in practical use in some installations, slits are made on a lead sheet by a vertical operating cutter and at the same time the expander is operated to make wire-net grids; in other words, the process developed by JSBC as an improvement of the "reciprocating expander process" and can be referred to as the "high-speed rotary expander process." In this new process, slits are made by a high-speed rotary slitter that revolves on a lead sheet which is sent on to the expander; with the reciprocating expanding process, generally about 20 to 30 meters of the sheet are processed per minute, but with the new process, production is doubled or from 40 to 60 meters of the sheet per minute.

The JSBC commenced research on this process to manufacture plate grids in 1972 and it received an important technology development subsidy from the Ministry of International Trade and Industry in 1977 to continue the development of this process which is based on an entirely different principle than the patents of other companies. A total of 26 applications for patents and utility models have been filed.

Special Features of the High-Speed Rotary Expander Process

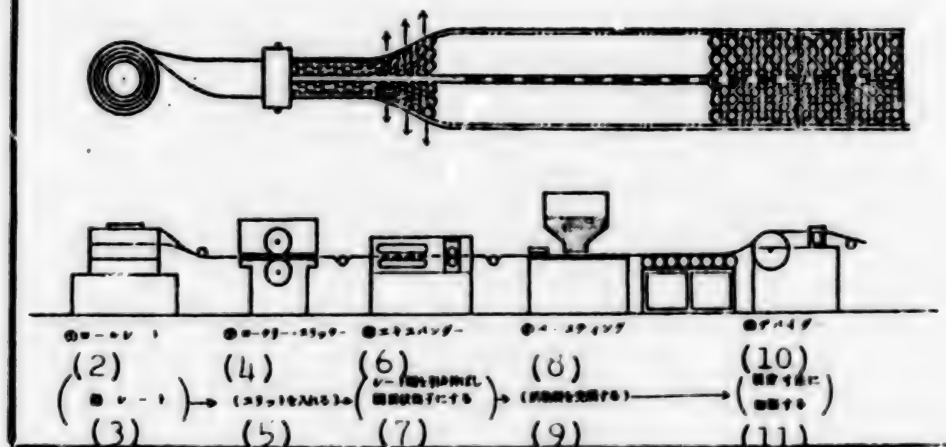
1. Twenty times greater productivity than the casting method used heretofore. When compared with the lead-antimony alloy used heretofore, the lead-calcium alloy that is used in maintenance-free batteries has a high melting temperature, low mechanical strength, and with such difficulties in handling and increasing the number of mold releasing agent applications, the low productivity of the casting method cannot be avoided; thus production of 15 units per minute is the limit.

In contrast, the possibility exists with the "rotary expander process" of continually producing more than 300 units per minute.

2. The minimum thickness of a plate grid (of lead-calcium alloy) from casting is said to be 1.3 mm, but with the new process a minimum thickness of 0.7 mm is attainable; moreover, a greater performance and lighter weight can be obtained.

3. The grid alloy texture is uniform and because there are no casting defects which are inherent in the casting method, a high quality plate-grid can be manufactured.

(1) (高速ロータリー・エクスパンダー方式による板製造工程例)



Key:

1. Sketch showing plate manufacturing by the high-speed rotary expander process
2. Rolled sheet
3. Lead sheet
4. Rotary splitter
5. Slit perforations
6. Expander
7. Wire-net grids formed by stretching sheet widthwise
8. Pasteing
9. Pasteing over active material
10. Divider
11. Cutting to prescribed size

9510

CSO: 4105

SCIENCE AND TECHNOLOGY

ORDERS PLANNED FOR EXPERIMENTAL PORTABLE SAM

Tokyo JPE AVIATION REPORT-WEEKLY in English 31 Oct 79 pp 6-7

[Text]

To develop a shoulder-launched surface-to-air missile, the Technical R&D Institute (TR&DI) has asked the Central Procurement Office, JDA, to issue six orders for fabrication of components and test facilities. Intended for common use among the Self-Defense Forces, the portable SAM features the image homing system which will enable the missile to be fired in frontal attacks on the target, now impossible with the infrared homing system prevailing among the world's front-line SAMs such as the US Army Stinger.

Under the six orders, one each set of Model A and B guidance/control units will be delivered by October 29, 1980. The rocket vehicle, motor, and gas generator will be delivered by the end of March 1981. A set of wind tunnel model and related test equipment, and a special test facility are required for delivery by mid-1980. Fabrication of an experimental SAM is expected for 1981.

CSO: 4120

SCIENCE AND TECHNOLOGY

DECISION ON MT-X EXPECTED IN SPRING

Tokyo JPE AVIATION REPORT-WEEKLY in English 31 Oct 79 p 7

[Text]

The ASDF is expected to decide next April or May on the MT-X next-generation medium jet trainer to replace the present T-33 and T-1, as a new aircraft program in the late 1980s has already been confirmed by JDA.

A formula for acquisition will be decided on along with a procurement plan. As to acquisition, the ASDF is said to be hoping for domestic development and production of the airframe and the engine of the new jet trainer, although production under foreign licenses is under consideration. It also hopes that a project for domestic MT-X development will start in FY 1981.

The ASDF will hold discussions within the service and coordination of views with JDA internal bureaus to study the domestic MT-X development project in view of data resulting from tests of the XF-3 engine and problems regarding design and fabrication of the airframe.

Meanwhile, the TR&DI has made a budgetary request for fabrication of a small turbofan engine in FY 1980. As this engine is likely to be used for the MT-X, the ASDF will consider it if the budgetary request is approved.

CS0: 4120

SCIENCE AND TECHNOLOGY

GSDF/TR&DI TO BEGIN ANTIMORTAR RADAR DEVELOPMENT IN FY '80

Tokyo JPE AVIATION REPORT-WEEKLY in English 31 Oct 79 pp 7-8

[Text]

The GSDF and the TR&DI are carrying out preparations for development of antimortar radar systems in FY 1980, planning actual deployment of the new systems in FY 1985.

Although it was originally intended to fabricate both of self-propelled and tracked types, only the latter has been selected for development in FY 1980. A funding request for fabrication of the former in FY 1981 is expected to be made next fiscal year.

In developing the new antimortar systems, the GSDF is said to be considering longer ranges and adding capabilities to simultaneously locate more than two mortars. A self-propelled type seems to be planned for armored units.

To meet these requirements, the GSDF and the TR&DI intend to adopt the phased array formula for the antenna, a high-performance computing system and a strengthened electronic counter countermeasure (ECCM) system. The self-propelled type is planned to be put on the Model 60 APC armored vehicle chassis.

After fabrication of the tracked type in FY 1980 and the self-propelled type in FY 1981, tests will be carried out from FY 1982 to 1983 so that operational service can begin in FY 1985.

The GSDF has been deploying JMPQ-N1 antimortar radar systems since the 3rd Defense Buildup Program, FYs 1967-1971. After completing procurement of existing systems in the current fiscal year, it will begin to replace them with the new system in the late 1980s.

CSO: 4120

SCIENCE AND TECHNOLOGY

EXTENSIVE RESEARCH INTO SATELLITE DATA BEGUN

Tokyo JPE AVIATION REPORT-WEEKLY in English 7 Nov 79 pp 9-10

[Text]

The Science and Technology Agency's Research Coordination Bureau has decided to study utilization of data from Landsat and other satellites regarding national land, water resources, maritime, and typhoons at a cost of about ¥160 million in two years starting in FY 1979.

It intends to appropriate ¥82.15 million for the satellite data research project in the current fiscal year ending next March.

Taking part in the project will be research institutes of the Construction Ministry, the Hokkaido Development Agency, the Agriculture, Forestry and Fisheries Ministry, the Environment Agency, the Ministry of International Trade and Industry and the Transport Ministry as well as the Science and Technology Agency.

Considering satellites' remote sensing as an important method for discovering national land and marine conditions, Japan has participated in projects for research into utilization of data coming from the Landsat I and II earth resource satellites of the United States since 1972. It also proceeded with research about remote sensing by aircraft from FY 1973 to 1978 to accumulate basic technologies for utilizing remote sensing data.

However, the nation's techniques for analyzing and utilizing satellite data are still behind those of other developed countries because data has been insufficient.

But supply of sufficient satellite data to Japan is now possible as the National Space Development Agency (NASDA) has been to receive data directly from the Landsat satellites and the Meteorological Agency from Japan's weather satellite "Himawari" and the Tiros N.

The agency plans to study ways of utilizing this satellite data to prove the usefulness of satellite remote sensing.

SCIENCE AND TECHNOLOGY

MELCO COMPLETES PLANT FOR SPACE EQUIPMENT MATERIALS

Tokyo JPE AVIATION REPORT-WEEKLY in English 7 Nov 79 p 10

[Text]

A plant for processing composite materials to manufacture structural material for artificial satellites, solar cell panels, antennas and other space equipment has been completed in the compounds of MELCO's Sagami Works in Kanagawa Prefecture. The ferroconcrete two-story processing plant has a total floor space of 620 square meters. Construction costs totaled ¥700 million since work began in November 1976.

The highly-automated plant is divided into two main shops, one for forming and the other for processing. The material to be used by the plant will be mainly of the CFRP (carbon fiber reinforced plastic) series.

The first product of the new MELCO facility will be the sub-structure of the ETS-IV, the fourth Japanese engineering test satellite.

CS0: 4120

SCIENCE AND TECHNOLOGY

TR&DI REQUESTS PRECISION GUIDANCE SIMULATOR

Tokyo JPE AVIATION REPORT-WEEKLY in English 28 Nov 79 p 7

[Text]

To meet increased research and development programs for guided weapons, the TR&DI plans to obtain a new precision guidance simulator, for which ¥600 million is being requested in FY 1980. The simulator will be used to support programs for various new guidance/homing methods utilizing lasers, infrared rays, and electro-optical devices as well as conventional radar.

The present "missile" simulator of the TR&DI was first introduced in conjunction with a development program for a radar-homing air-to-ground missile.

The flight table, which is the core of the system, will be imported but peripheral systems will be developed by the TR&DI.

CS0: 4120

SCIENCE AND TECHNOLOGY

GSDF PLANS TO DEVELOP ANTITANK RECOILLESS GUN

Tokyo JPE AVIATION REPORT-WEEKLY in English 28 Nov 79 p 8

[Text]

The GSDF has started procurement of the Model 79 antiship/tank missile system, following completion last year of the Model 60 self-propelled 106mm recoilless antitank gun system. The Model 79 SSM system is to replace the Model 60 recoilless gun. In the future, however, the GSDF plans to deploy a new antitank gun which will be capable of firing various types of ammunition while the Model 79 missile's warhead is limited to the HEAT type.

In this regard, it is interesting to note that a "theme study" of the TR&DI calls for development of a self-propelled low-recoil gun system under the FY 1980 budget. It is probable that the study is being planned to meet GSDF requirements for a new antitank gun system.

Besides the Model 60 SP gun, the Model 77 84mm recoilless gun is currently deployed as an antitank weapon. Also 66mm grenade-rifle is in the final stages of development.

CSO: 4120

SCIENCE AND TECHNOLOGY

R&D PROGRAMS FOR MARITIME EQUIPMENT

Tokyo JPE AVIATION REPORT-WEEKLY in English 31 Nov 79 pp 8-9

[Text]

Major programs of the TR&DI, JDA, on request in the FY '80 draft budget for research and development of maritime equipment are described below:

¥7,165 million is on request to cover 1) construction of an experimental boat with FRP (forced resin plastic hull), 2) fabrication of a new diesel engine for mine-sweepers, and 3) five projects on torpedoes.

To construct a 200-ton experimental boat with the FRP hull, measuring 35 meters, ¥876 million is requested. The purpose is to gain expertise for building future mine-sweeping boats to replace wooden boats currently in service. Basic study began in FY '75 and experiments on processing and fabrication of FRP material are being promoted. A total of ¥1,400 million is envisaged for this program.

Fabrication of a new non-magnetic diesel engine intended to replace the 12ZC and 10ZC series which power the MSDF mine-sweepers in service. With ¥42 million on request for FY '80, components will be fabricated for a four-cycle water-cooled 1,500hp engine that features non-magnetism of 92 to 95 percent. Non-magnetic parts such as rod pins and connecting materials will be fabricated along with a supercharger. Component development will be completed in FY '81.

Modification of the Model 73 torpedo at a cost of ¥1,714 million in FY '80 follows the FY '79 program authorized at ¥5,280 million. Intended for use

by aircraft and surface vessels against submarines, the new torpedo will feature improved homing devices. Technical feasibility is expected to be established by FY '82.

Development of a new electric torpedo motor will continue in FY '80 with funds of ¥258 million. By improving performance of oxidized silver primary and secondary batteries the projected propulsion system will replace the motor of the Mk 37 long-range torpedo.

Development of components for a new short antisubmarine torpedo is planned, including prototype control units and the torpedo casing, for which funds of ¥273 million and ¥372 million, respectively, are on request.

Development of the GRX-2 high-speed torpedo enters the system integration phase of development in FY '80 with requested funds of ¥3,628 million. The GRX-2 program from FY '70 up to FY '79 totalled ¥17,500 million. The high performance torpedo is intended mainly to attack submarines running at high speeds in deep waters. Fired by submarines, it can be also used against surface vessels.

CS0: 4120

SCIENCE AND TECHNOLOGY

BRIEFS

NEW ECM DEVELOPMENT--The ASDF/TR&DI appear eager to develop the ALQ-5 airborne ECM (electronic countermeasure) system for early service introduction. The project was initiated in FY 1977 as a successor to the ALQ-3. After basic design work in FY 1978, the system entered the first phase of fabrication in FY 1979. The second phase is planned in FY 1980 along with redesigning a C-1 tactical transport for conversion into an ECM trainer. The C-1 ECM trainer will be fabricated in FY 1981 while the ALQ-5 is under development so that functional tests can be performed to meet planned introduction of the system in or around FY 1984. [Text] [Tokyo JPE AVIATION REPORT-WEEKLY in English 28 Nov 79 p 7]

MT-X PROJECT FOR FY 1981--The TR&DI, JDA, is scheduled to begin its development program for a small turbofan engine in FY 1980 envisaging use on future military aircraft such as a trainer. The same office is scheduled to start a program for a new ASDF trainer coded MT-X in FY 1981. It is expected, therefore, selection of contractors for development of the MT-X will be made during FY 1980. The airframe manufacturers have been asking JDA for an early decision on starting the MT-X program which is the only major aircraft program left for the next decade. Kawasaki and Fuji heavy industrial firms have expressed desire to be designated prime contractors while Mitsubishi Heavy Industries has also shown interest in participating. It is likely, however, that the MT-X designing and engineering work will be jointly promoted by these airframe manufacturers as was the case with the ASDF T-2 supersonic trainer. [Text] [Tokyo JPE AVIATION REPORT-WEEKLY in English 28 Nov 79 pp 7-8]

MANEUVERABLE TARGET DRONE--The TR&DI plans to start development of a new target drone in FY '80 to meet ASDF requirements. The drone is required to be highly maneuverable, according to sources, for firing practices of air-to-air missiles with ASDF front-line fighters. At present, targets are towed by the T-33 subsonic jet trainer, and maneuverability is inferior to highly maneuverable front-line fighters of today. It is also felt that the possibility of the two aircraft being hit by missiles is increasing as the performance of AAMs improves. The new drone will be

reusable. The TR&DI plans to assign basic research work to an industrial firm in FY '80, with evaluation starting the following year. The MSDF now uses Firebee BCM-34 drones for practice firing of the Tartar missile while the GSDF uses the Northrop MQM-74C Chukar II. [Text] [Tokyo JPE AVIATION REPORT-WEEKLY in English 28 Nov 79 pp 8-9]

NEW SONAR DEVELOPMENT--The TR&DI has been promoting extensive research on components aimed at development of new types of sonar, in cooperation with the MSDF. In FY '80 the TR&DI plans to fabricate a low frequency receiver as a part of its efforts to develop an improved underwater acoustic data processing system that will identify targets in a passive mode. Funds of about 50 million yen are reportedly on request for the low frequency receiver in the FY '80 draft budget. [Text] [Tokyo JPE AVIATION REPORT-WEEKLY in English 31 Oct 79 p 7]

ARTIFICIAL BLOOD DEVELOPMENT--New York Nov 20 KYODO--Artificial blood developed in Japan was for the first time used for transfusion in the United States Tuesday. The patient, who received the transfusion, is a 67-year-old man who had undergone an operation on his leg at the hospital of the University of Minnesota in Minneapolis. The hospital decided to use artificial blood for this old man who refused ordinary blood transfusion for religious reason. The blood, which was used in this case, had been developed jointly by Kobe University's faculty of medicine and the Green Cross Corp., with its head office in Osaka. It is called "fluosol-DA," and has been given so far to about 50 patients in Japan. In the United States, however, it was not until November this year that the Food and Drug Administration (FDA) approved the use of fluosol-DA in emergency cases alone. The patient in Minneapolis is an adherent to a religious sect called "Jehovah's witnesses." The followers of this sect, numbering about 55,000 [as printed] in the United States, believe that the ordinary blood transfusion is not justified by the Bible. [Text] [Tokyo KYODO in English (no time given) 20 Nov 79 OW]

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